

THE CHEMICAL COMPOUND THAT OUTDID

# Rip Van Winkle

● Commercially, *sodium chlorite* was asleep for 100 years. It was not until 1941 that it came into its own — when it was first produced in commercial quantities at Mathieson's new chlorite plant at Niagara Falls. Fourteen years of intensive research and practical experimentation by the Mathieson technical staff had preceded the actual construction and operation of the plant.

Long known to chemists by the formula  $\text{NaClO}_2$ , sodium chlorite has unusual oxidizing powers which make it an invaluable bleaching and processing agent. Today sodium chlorite is widely used in the paper and textile industries. It has successfully demonstrated its ability to bleach paper pulp and textiles to high whites without loss in tensile strength — a result that no other known processing agent has been able to achieve. Non-hygroscopic and readily soluble in water, sodium chlorite is highly stable both in solution and in solid form . . . can be heated to 150 degrees C. without decomposition.



Every day this exclusive Mathieson product is finding new applications in American industry — at a time when progress and production are as vital to victory as all-out offensives on the fighting fronts.

## DO YOU KNOW THESE FOUR SODIUM CHLORITE PRODUCTS?

- *Textone* for textiles
- *C2* for paper pulp processing
- *Sodium Chlorite Technical* for general commercial oxidation and processing
- And, of course, the *pure analytical grade* used as a laboratory reagent

# Mathieson

## CHEMICALS

THE MATHIESON ALKALI WORKS (INC.)  
60 EAST 42ND STREET, NEW YORK, N. Y.

LIQUID CHLORINE . . . SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . BLEACHING POWDER . . . HTH PRODUCTS . . . AMMONIA, ANHYDROUS and AQUA . . . FUSED ALKALI PRODUCTS . . . SYNTHETIC SALT CAKE . . . DRY ICE . . . CARBONIC GAS . . . SODIUM CHLORITE PRODUCTS

# THE READER WRITES

## "A Mighty Fine Time to Have Lived"

Referring to the fine article by Colonel Harry A. Toulmin, Jr., in the November, 1942, issue of *CHEMICAL INDUSTRIES*. In the third column, page 697, the author states "and from 1880 to 1930 industries were learning to pull the industrial vehicles as a team, for this last period was the era of team work, coordination, organization and of corporate combination."

The author has raised an intriguing thought in this statement. The Interstate Commerce Commission began compiling statistics on carloadings a few years prior to 1900. Carloading figures are considered by economists as being indicative of human demands, which were stimulated, as Colonel Toulmin so ably describes, by invention. Inventions are improved by research, and research not only stimulates invention but also creates it. Thus the beginning of the present century saw the union of invention and research. This called for financing beyond the capacity of the individual and we also saw the beginning of corporate combinations, of which the author speaks.

Carloading figures doubled approximately every twelve years from prior to 1900 until 1914 when the World War created a "false demand" for goods and materials. As in the present war, the first World War had a stimulating influence on invention. We also saw the expansion and refinement of research facilities and talent during this period.

The invention of new things in the automotive, aircraft, communications, household and other fields, not only required the older industries like the railroad, telegraph, telephone, etc., to change long established practices, but it put other lines of industrial activities out of business or decreased their importance to society. Witness canals, interurban trolley systems, short-line passenger traffic on the steam railroads, etc. Practically all this occurred since 1900.

Invention and the results of invention were the primary factors that brought about the urban population growth of this country. People moved from the farms to the towns and cities where they could make more money and live more expensively.

As Colonel Toulmin so ably points out in his article, invention has been the vital factor towards making America what it is today. We who are now living in the forty- or fifty-year brackets have not only seen all this happen, witnessed the effects of invention on employment and a national economy, but enough has already been accomplished in the line of inventions and patents granted to foresee the future.

For example, television and rocket airships.

As one just starting the fifty year bracket it has been a mighty fine time in which to have lived.

MARION B. RICHARDSON

*Editorial Note:* Readers will also find the forum on patents appearing on pages 30-33, of special interest.

## Accidents vs. War Production

The National Safety Council and its War Production Fund to Conserve Manpower by Presidential proclamation have been given the job of keeping American production lines free from accidents.

About to be launched is a national-community plan of action against accidents to be employed in major war production centers. This will be done under National Safety Council guidance with local leader-

ship. It will be an extremely important step towards relieving management of the problem of time out through accidental death and injury.

While the Council has been coming to grips with a vast and involved problem, the trade press has not hesitated to back to the full what it clearly recognizes as a wartime necessity of the first order. It is even more important for the success of the national safety movement that this latest step be brought home to all phases of industry and business.

On behalf of William A. Irvin, national chairman of the War Production Fund, and of Colonel John Stilwell, the president of the National Safety Council, may I ask on the eve of this all-out drive the support of your columns.

DONALD HAMMOND,  
National Director, National Safety Council,  
War Production Fund to Conserve Manpower.  
New York, N. Y.

*Editorial Note:* The National Safety Council is seeking \$5,000,000 for the War Production Fund to Conserve Manpower. Details were given in the December issue, C.I., page 839.

## Important—Do You Bind Your Copies of *CHEMICAL INDUSTRIES*?

*CHEMICAL INDUSTRIES* has supplied in the past every subscriber with a very detailed Index covering, of course, all of the material appearing in the magazine in the preceding six-months period. Each volume of *CHEMICAL INDUSTRIES* consists of six monthly issues. The volume for the last half of each year also includes the BUYER'S GUIDEBOOK NUMBER.

Publishers are cooperating wholeheartedly with the WPB order requesting that

at least a saving of ten per cent in the amount of paper consumed in 1943 over that used in 1942 be placed in effect immediately. In this spirit of cooperation we have printed only a limited number of the Index covering Volume 51 (July-December, 1942). If you bind your issues, or for any reason desire a copy of the Index for Volume 51, please advise us immediately. *C'est La Guerre*.

## CALENDAR OF EVENTS

Jan. 11-13, National Pest Control Assoc., Third Annual P. C. O. Conference, Massachusetts State College, Amherst, Mass.

Jan. 11-15, Society of Automotive Engineers, War Production-Engineering Meeting and Engineering Display, Book-Cadillac Hotel, Detroit, Mich.

Jan. 13, Phila. Paint, Varnish & Lacquer Assoc., Membership Meeting.

Jan. 13-14, American Management Assoc., Marketing Conference, Drake Hotel, Chicago, Ill.

Jan. 14, Association of American Soap & Glycerine Producers, Annual Meeting, Waldorf-Astoria Hotel, New York City.

Jan. 14-15, American Management Association, Wartime Marketing Conference, Hotel Drake, Chicago, Ill.

Jan. 18-19, Compressed Gas Mfrs. Ass'n, Inc., Annual Conference, Waldorf-Astoria Hotel, New York City.

Jan. 20-21, American Society of Civil Engineers, Engineering Societies Bldg., New York.

Jan. 25-27, American Society of Heating and Ventilating Engineers, Annual Meeting, Hotel Gibson, Cincinnati, Ohio.

Jan. 25-27, National Crushed Stone Association, Annual Convention, Hollenden Hotel, Cleveland, Ohio.

Jan. 25-29, American Inst. of Electrical Engineers, National Technical Meeting, Engineering Societies Building, New York City.

Jan. 27-29, National Sand and Gravel Association, Annual Convention, Hotel Statler, Cleveland, Ohio.

Feb. 5, American Chemical Society, New York Section.

Feb. 10, Gypsum Association, Annual Meeting, Bismarck Hotel, Chicago, Ill.

Feb. 10, Phila. Paint, Varnish & Lacquer Assoc., Executive Committee Meeting.

Feb. 10-12, American Management Assoc., Personnel Conference, Palmer House, Chicago, Ill.

Feb. 11-12, The Engineering Institute of Canada, Fifty-seventh Annual General Meeting, Royal York Hotel, Toronto, Canada.

Feb. 12-13, Steel Founders Society of America, Annual Meeting, Edgewater Beach Hotel, Chicago, Ill.

Feb. 14-18, American Institute of Mining and Metallurgical Engineers, Annual Meeting, Engineering Societies Bldg., New York, N. Y.

Week of Feb. 15, American Paper and Pulp Assoc., Annual Convention, Waldorf-Astoria Hotel, New York City.

Feb. 15-18, Technical Association of Pulp & Paper Industry, Annual Meeting, Hotel Commodore, New York, N. Y.

Feb. 17-18, American Concrete Institute, Annual Convention, Chicago, Ill.

Feb. 19, Society of Chemical Industry, Regular Meeting, Chemists' Club, New York City.

March 5, New York Section American Chemical Society, Wm. H. Nichols Medal.

March 10, Philadelphia Paint, Varnish & Lacquer Association, Regular Membership Meeting.



# Prevent

corrosion with chromium chemicals

THE remarkable properties of Bichromates and Chromates, for inhibiting corrosion, together with their low cost, had attracted wide attention before the war and were being used extensively by many industries as a matter of routine economy.

Now, quite apart from economic factors, they are of special value, as anything that can prolong the life of metal is vital to our war effort. Some of the present uses include:

RECIRCULATING WATER SYSTEMS—SAND-BLASTING—  
REFRIGERATION BRINES—AUTOMOBILE RADIATORS—  
COOLING SYSTEMS FOR DIESEL ENGINES—BUOYS—  
AIR-CONDITIONING SYSTEMS—SEAPLANE FLOATS—  
SEAPLANE PONTOONS—AIRCRAFT FUEL TANKS

Adequate supplies are available. Only very small quantities are necessary for effective results. Available from distributors' warehouses in most industrial centers.

Our booklets: "Chromium Chemicals as Corrosion Inhibitors" and "Corrosion in the Refrigeration Industry" will be sent upon request.



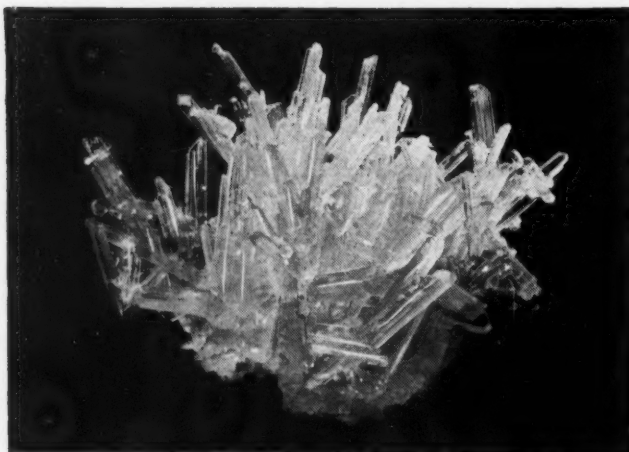
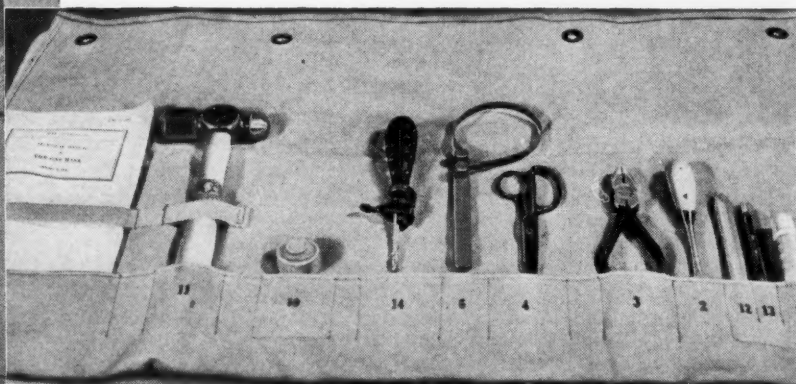
*Mutual Chemical Co. of America*

270 MADISON AVENUE, NEW YORK

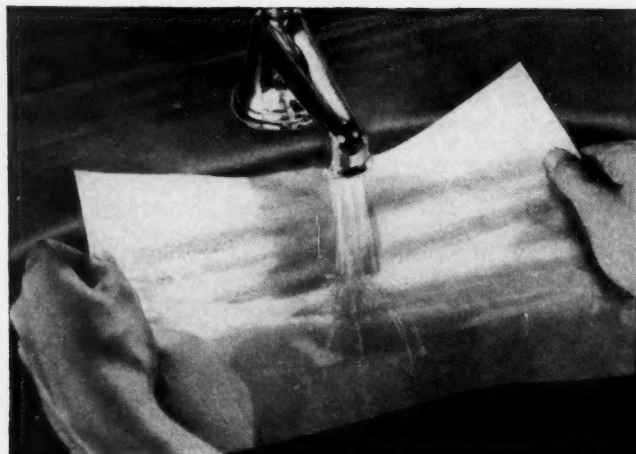
# Life ON THE CHEMICAL NEWSFRONT



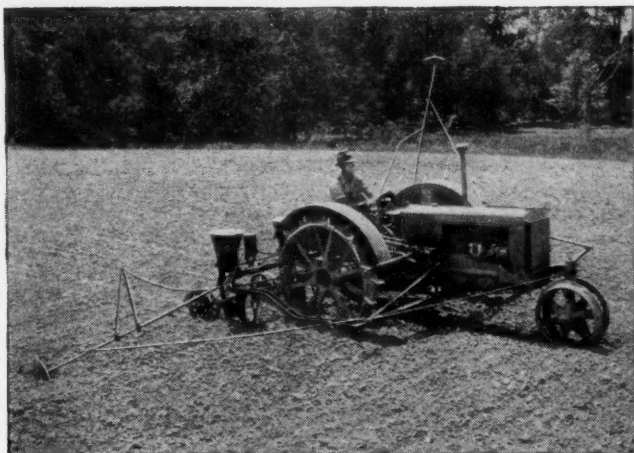
(Left and Below) **GAS MASK REPAIRS** are quickly made with the aid of this kit, which contains all of the necessary repair tools together with a manual of instructions, closes when not in use to form a compact, easily carried package. A single purchase of a \$25 War Bond will provide sufficient of these repair kits to service the gas masks for 37 companies of men. You can help to finance the production of vitally needed equipment for the armed forces by making regular purchases of War Bonds or Stamps every payday —and the Payroll Savings Plan of the Treasury Department offers a convenient means for making consistent contributions to the war effort. A regular flow of dollars helps maintain a regular flow of arms.



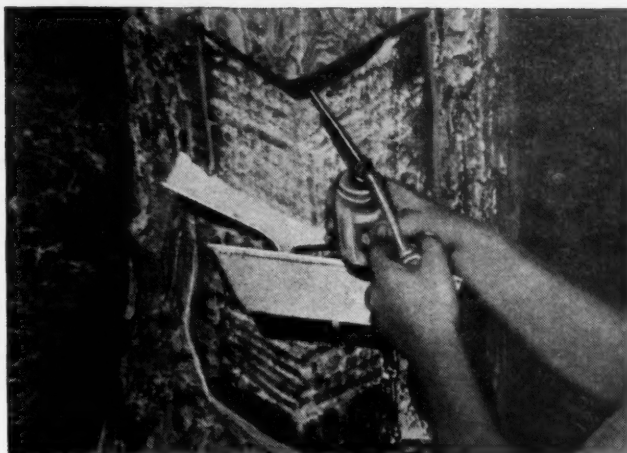
(Above) **SODIUM SULPHATE**, used commercially in both the anhydrous and hydrated forms, finds wide industrial utility in such varied applications as the manufacture of sulphate pulp, in textile dyeing, and an ingredient of glass batches and of freezing mixtures. In addition, it is employed as a laboratory reagent in a variety of analytical techniques. American Cyanamid is an important source of this chemical, shown in the photo in the form of a crystal of sodium sulphate decahydrate, formed by crystallization from a saturated solution.



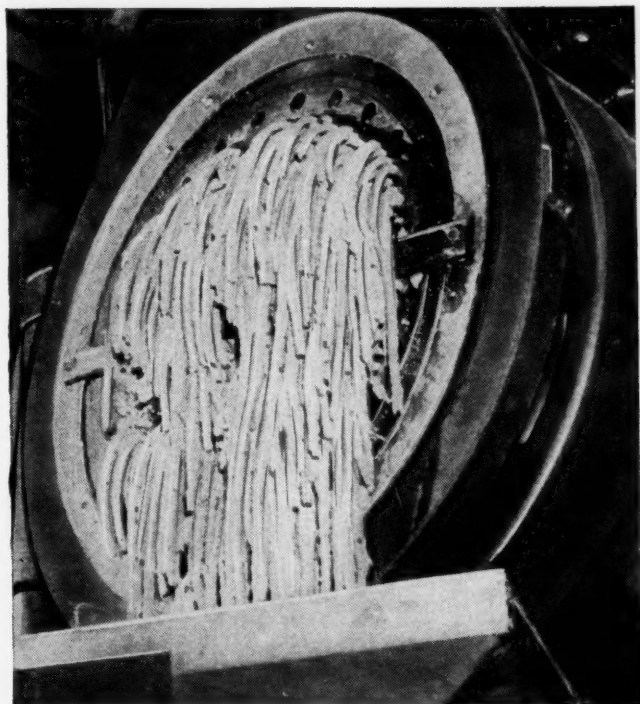
(Above) **HIGH WET STRENGTH** in paper is readily obtained with the aid of a new synthetic resin developed by Cyanamid. An outstanding advantage of this resin is that it is incorporated in the stock *before* the sheet is formed, and thus requires no equipment beyond that ordinarily found in paper mills. The treatment also substantially increases the bursting and tensile strength, as well as the fold resistance of the dry paper, and these improved properties are retained after prolonged storage even under adverse conditions of temperature and humidity.



(Above) **NO NEED FOR SCARECROWS** now to protect seeds from the depredations of birds after the seeding machine has finished its work. Research workers have found that chemical means can be employed to good advantage in providing the necessary protection without damage to the seeds. Of a number of chemicals tested, best results appeared to be obtained with tetramethylthiuram disulphide.



(Above) **NAVAL STORES PRODUCTION** is expected to be greatly increased as a result of a recently developed process. Key to the higher yield lies in spraying sulphuric acid on a streak chipped in the trunk of pine trees. Here is a new field of utility for sulphuric acid—one of industry's most important and versatile chemicals—of which Cyanamid is among the country's largest producers.



(Above) **HUGE SYNTHETIC RUBBER PROGRAM** requires large quantities of the many rubber chemicals in Cyanamid's line. Among the steps which Cyanamid has taken to meet these demands is the expansion of facilities for the production of aniline, from which are derived many of the most important vulcanization accelerators for both synthetic and natural rubbers, as well as a number of rubber anti-oxidants. Photo shows one of the steps in the manufacture of synthetic rubber—forcing of the rubber through a perforated plate. Here large pieces are broken up and excess moisture removed.



(Above) **HIGH-ALTITUDE FLYING** is made more comfortable for the aviator who wears a lambskin flying suit. The lambskin is cut in individual sections, as shown in the photograph, which are assembled to make a suit that provides ample warmth, yet is lighter in weight than previous types. As the leather and tanning industries confront new problems, Cyanamid's technical assistance and research work in leather chemicals are of extreme value. Typical of Cyanamid's contributions is KERALIN\* proteolytic enzyme which is setting new standards of quality in the bating process.

\*Trade-Mark

## American Cyanamid & Chemical Corporation

A Unit of American Cyanamid Company



30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

\*Reg. U. S. Pat. Off.



# WASHINGTON

By T. N. Sandifer

**T**HIS is the time of year when one tries to appraise what has happened, while looking ahead to see what is about to happen. Under the conditions it is a wise man who can avoid the temptation to do either. Nevertheless, some things are fairly clear.

The issue of one-man government is beginning to be met—and by this is not meant government by the President alone; it means government by one-man bureaucratic action, on authority sometimes so shadowy that a show-down is avoided at all costs.

The end of the 77th Congress appears definitely to have marked the beginning of the end at least, of an era. A long period in fact, in which existing laws and precepts have



T. N. Sandifer

been technically discarded at the convenience of almost any petty official in Washington who could persuade the Administration to demand extraordinary powers, or to take them. Or grant them, on the basis of one or another of the legal blank checks that have been passed so freely in recent years.

The incoming 78th Congress appears to be made of more solid stuff, and is coming to Washington with an implied mandate to show that it is so constituted. This may make for a more certain outlook for the business world, compared with the conditions prevailing in the past. At the outset, it is viewed reassuringly in this connection by most commentators.

There are a number of proper subjects for the exercise of Congressional independence—forthcoming taxation, the impact of Washington's multifarious bureaus on private business, the consideration of general business legislation—these are only a few.

The effect is apparent already in Washington, even before the new Congress has had a chance to really get to work. The Administration made some gestures of putting its house in better order, beginning with the holidays—the change in OPA directorship, with the unofficial, but apparently well-founded intimation that this agency would operate on a more moderate scale henceforth; and with great play on the fact that the troublesome government questionnaire epidemic would be dealt with, from within—to mention only typical instances.

On the questionnaire matter, it was promised that additional controls by the Bureau of the Budget would become effective January 1, on all requests by Federal departments and agencies for statistical data from business and industry. A mechanism has been established for double-checking all such forms and projected data requests, that it is hoped, will eliminate all but the most vital of these.

## May Be Forerunner

Recognizing that questionnaires are the inevitable accompaniment of the attempt to run every county and every business from Washington, especially when those charged with doing the running are not always completely hatched, as it were, this check on a pernicious activity may be a forerunner of better administrative ways. The new Congress may well be a factor in assuring this brighter day.

With all of the nagging that has occurred in the past, there is good evidence at Washington that production on most fronts has been at least satisfactory. The war effort to date has been favorably compared with the progress recorded for the same period in the last war before this

Still forward-looking, and more directly at the chemical field, there is reason to anticipate the revelation in time, of important chemical contributions to the war. While these are doubtless known to individual industries, it may be said that

official hints from time to time, of dark things in store for the enemy are more than warranted. He may get some of them any time.

It may be recalled that this department observed some time ago that the Administration had time for only one "throw" in the war effort, before the Congressional elections. That move, as it developed, was in the direction of North Africa, and inferentially, Europe itself. For reasons not made public it was consummated just after the voting. There is little doubt that the movement has led to a more optimistic outlook for the war effort than anything taking place earlier, since it was obviously part of a full-scale plan.

Again narrowing the focus to the chemical field, chemistry is among the beneficiaries of a war move at home—seizure of enemy patents which have or will become available to the industry. Such patents in chemistry, among the more than 25,000 made available from the 50,000 so far taken up by this government, are proving of outstanding interest; the largest single class of applications for their use is in drugs and organic chemicals.

## Two Developments Loom

Two prospective developments for early in the year, inventory control and a move toward centralization of production, are causing some uneasiness in other fields, but at Washington are not expected to affect the chemical industry very much. Inventory control will enter the field in its effect on paints and varnishes, alcohol, drugs and cosmetics, and soaps, perhaps. Centralization plans have not crystallized sufficiently at this stage to say with certainty, but it is not expected that this will involve chemical production to any extent.

The anticipated deficit in fats and oils in the coming year is making itself apparent in gradually tightening restrictions, such as the glycerine control order M-58. A sequel action is the order M-193 which puts into effect the program worked out last Fall covering fats-splitting, glycerine recovery from soap-making, and glycerine refining industries. This plan was dealt with more fully at the time in this magazine (*Between the Lines*). The order sets up certain standards of production efficiency for glycerine recovery, and is in addition to Orders M-60 (coconut oil) and M-59 (palm oil) but is more rigid in its effect. Another action has been the amendment to M-71, (General Preference Order) the most important effect of which is to broaden quota restriction exemptions for fats and oils exports. Under this amendment the allowance of 200,000,000 pounds of fats and oils shipped annually to Canada, is maintained. So is the allowance of 170,000,000 pounds for other

(Continued on page 79)

# THE *Dynamic* WAY OF LIFE

Not for generations have Americans been so acutely aware of the meaning of freedom. No longer do we take it for granted. To us it is now the sword and the shield, the spade that turns the soil, the spark that powers our industries, the master key to scientific progress. Without it the dynamic way of life we call Democracy could not be possible. For Democracy thrives only in the air of freedom.

Symbolic of the stream of freedom in American history, and of the dynamic way of life this country has followed, is Niagara. From it millions of Americans have derived a vision of strength, abundance and power. They have seen in Niagara the great potentialities that the hills and plains and rivers of this country offer, and the ideal of humanity flowing towards a new goal. They see strength

and permanence, too, in ceaseless forward movement. In the light of events today,

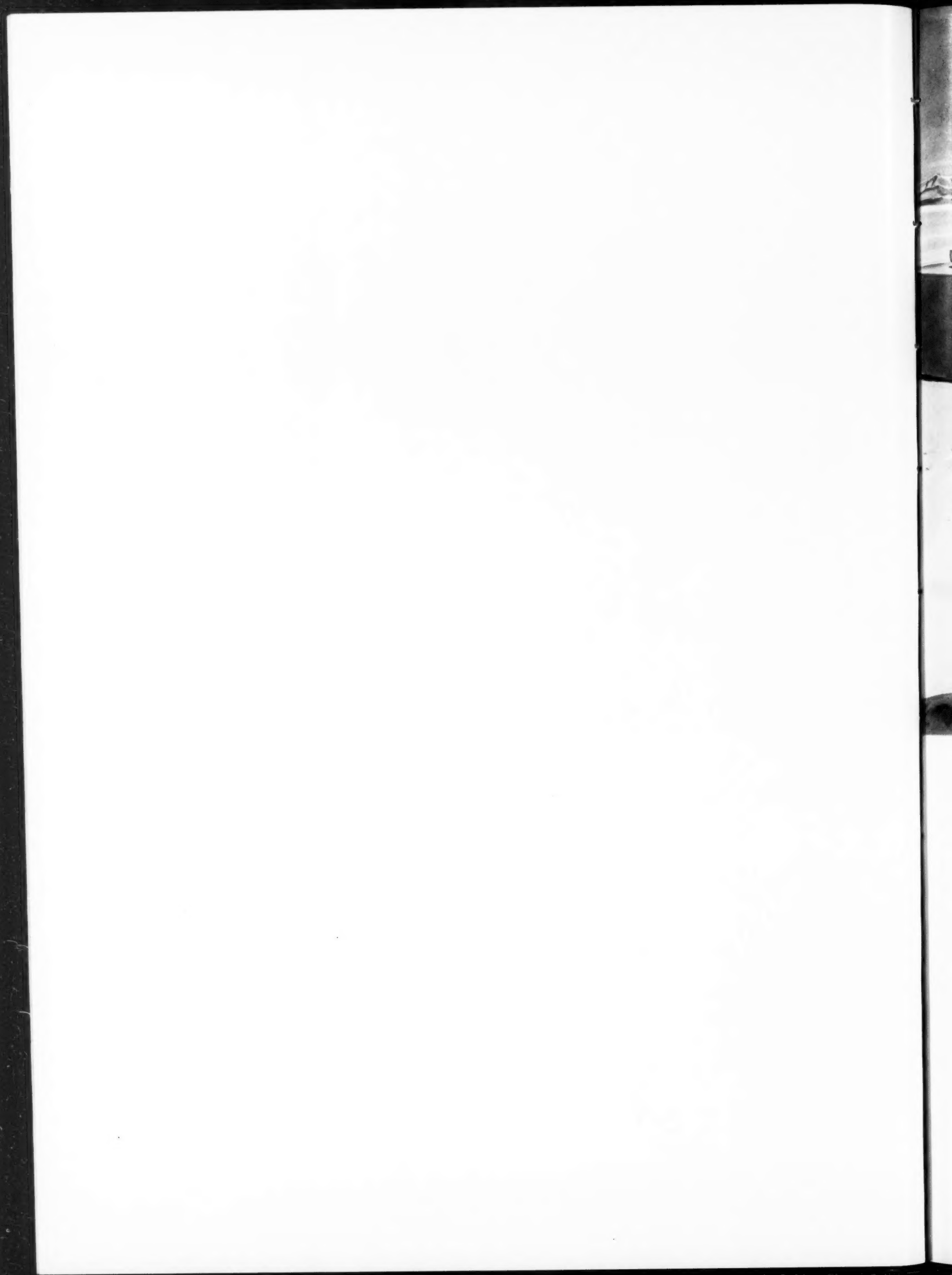
Niagara is now more than ever a true expression of America.

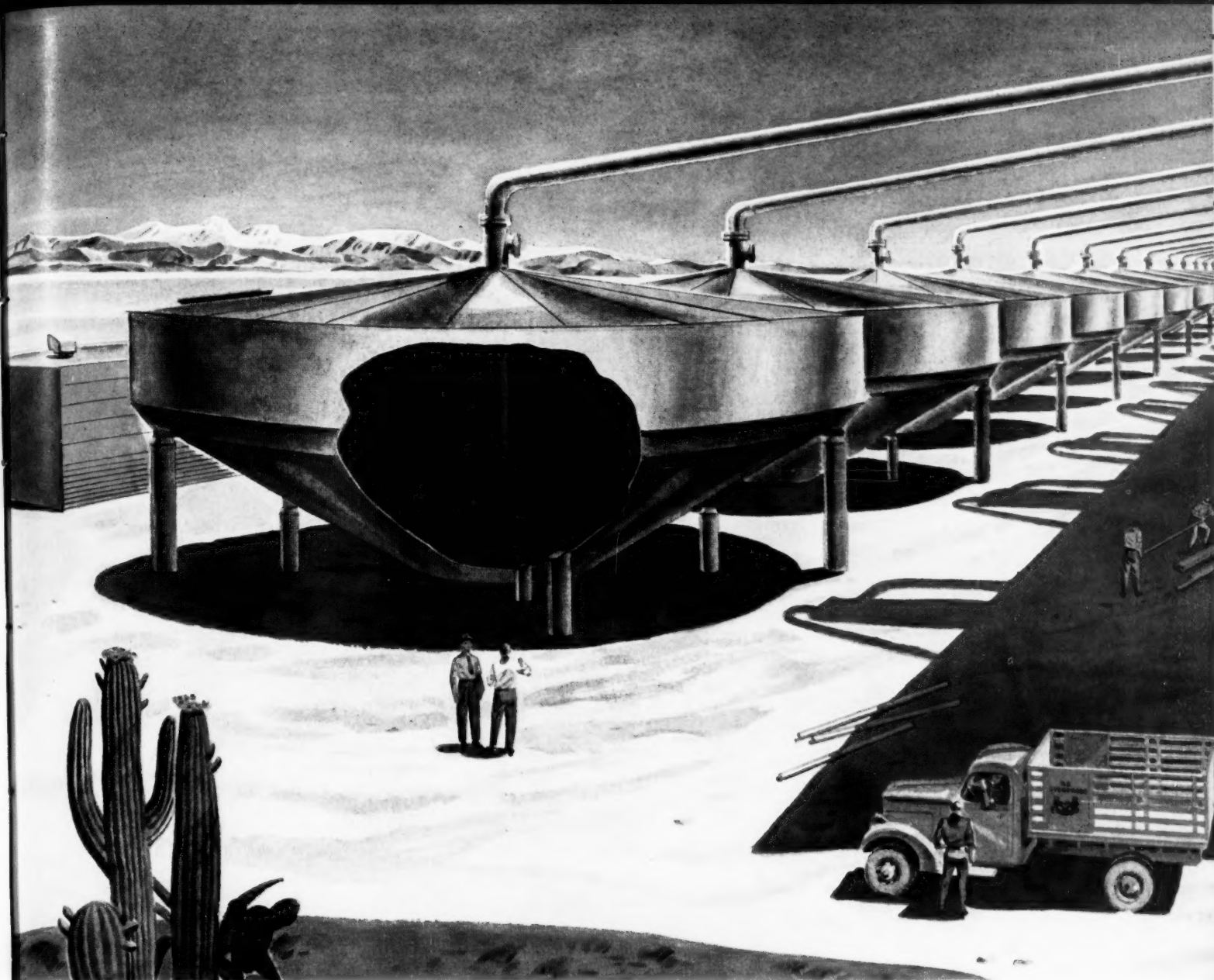
*We who work within sight and sound of Niagara Falls are devoting every ounce of our energies and facilities to speeding the flow of chemicals for Victory.*

**CAUSTIC POTASH • CAUSTIC SODA  
PARA • CARBONATE OF POTASH  
LIQUID CHLORINE**



**Niagara ALKALI COMPANY**  
60 EAST 42nd STREET, NEW YORK, N. Y.





## TYGON *geared to the impossible*

Three characteristics were primarily responsible for the selection of Tygon as a lining material for the giant tanks used in one of the world's largest plants for the extraction of magnesium: First — an inherent and permanent inertness to corrosive attack; Second — the ease and simplicity with which Tygon could be applied *in the field*; and, Third — the tenacity with which Tygon bonds to steel.

Tygon is one of industry's most versatile synthetics. Its unrivalled resistance to corrosion is coupled with an amazing flexibility in application. Tygon protective linings, for example, may be applied to open or closed vessels of all sizes and shapes, either in our factory or in the field, without the necessity of vulcanizing or curing to form a bond. Tygon's flexible nature permits it to adapt itself to the contours of the vessel to be lined.

Tygon will not crack, buckle, or separate under sharp thermal or mechanical shock. Tygon operates satisfactorily at temperatures as high as 175 deg. F. (For higher temperatures Tygon linings should be oversheathed with U. S. Stoneware's acid-proof brick and cement.)

It is this combination of basic qualities: inertness to corrosive attack, simplicity of application, and tenacity of bond — that has extended the usefulness of Tygon tank linings to all industry wherever corrosives are handled.

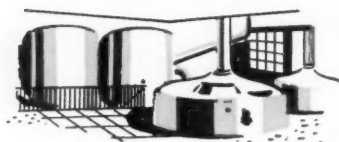
Tygon retains its inherent corrosion-resistant qualities through a wide range of physical forms. It is made in rigid or flexible sheets for linings or gasketing; in flexible tubing; in liquid form for use as a paint or for impregnation of fabrics; and in formulations for extruding or molding.

**US**  
**STONEWARE**

LINED EQUIPMENT • ACID  
PROOF MASONRY • ALLOY  
EQUIPMENT • CHEMICAL STONEWARE

**WORKS:**  
**AKRON, OHIO**

*Since 1865*



#### **EFFECTIVE CORROSION CONTROL •**

Selection of satisfactory materials for fabrication and protection of equipment handling corrosive chemicals is becoming an increasingly complex problem. Unfortunately, no one corrosion-resistant material can meet the varied needs of industry. A material which will resist a 20% acid solution may break down under a 40% solution; an increase of 10 degrees in temperature may increase the reaction of a solution as much as four times; equipment which serves satisfactorily for intermittent operation may succumb quickly under demands for continuous production.

Consideration of the multiple characteristics of many materials must be weighed and balanced — not only for their reaction under exposure to various chemical agents at varying concentrations and temperatures, but for their flexibility in application . . . their tensile strength . . . their dielectric strength . . . their reaction to thermal and mechanical shock . . . their inherent durability . . . and, of tremendous importance today, their availability.

For more than three-quarters of a century, The United States Stoneware Company has been engaged in combatting the destructive forces of corrosion. As new problems arose, we pioneered and developed new corrosion-resistant materials, and perfected new engineering and manufacturing techniques requisite to their use.

Unique in the function we perform for industry, The United States Stoneware Company designs, builds, and erects corrosion-resistant equipment from all available materials of construction: the wide range of industrial ceramics; the metals and their alloys; natural rubber; and synthetics.

Whatever your corrosion problem, the chances are good that we can be of immediate and practical help in aiding you to work out a solution. Bulletin D-1, available on request and without obligation, tells the complete story.

## **THE UNITED STATES STONEWARE COMPANY**

**AKRON, OHIO**

**NEW YORK    CHICAGO    BUFFALO    SAN FRANCISCO    LOS ANGELES**

**IN CANADA: CHAMBERLAIN ENGINEERING, LTD., MONTREAL, ONTARIO**

**THESE ARE BUT A FEW OF THE MANY U. S. STONEWARE PRODUCTS AIDING INDUSTRY IN CONTROLLING CORROSION. THEY SERVE TO INDICATE, HOWEVER, THE WIDE RANGE OF U. S. STONEWARE'S ENGINEERING AND PRODUCTION FACILITIES:**

#### **INDUSTRIAL CERAMICS**

##### **CHEMICAL STONEWARE**

PIPE AND FITTINGS  
JARS AND TANKS  
VALVES AND FAUCETS  
SUCTION FILTERS  
LABORATORY SINKS  
JAR MILLS  
STONEWARE-LINED PUMPS & FANS

##### **SPECIAL CERAMICS**

CHEMICAL PORCELAINS  
ELECTRICAL PORCELAINS  
STEATITE, HIGH ALUMINA, AND SILICON  
CARBIDE BODIES  
CERATHERM AND ACITHERM HEAT SHOCK  
RESISTANT BODIES

##### **TOWER PACKING**

STONEWARE OR PORCELAIN

#### **ACID-PROOF BRICK, CEMENTS**

"USSCO" ACID-BRICK  
"VITRIC-10" SILICA CEMENT  
"PRE-MIXT" SILICA CEMENT  
SULPHUR BASE CEMENT  
RESILON CEMENTS  
RUBBER BASE CEMENTS  
DURALON SYNTHETIC CEMENTS

#### **CEMENT-ASBESTOS PIPE**

#### **METALS AND ALLOYS**

ALLOY FABRICATION  
ALLOY FANS  
VENTILATING EQUIPMENT  
HOMOGENEOUS LEAD COATINGS  
SHEET LEAD LININGS  
LEAD ANODES

#### **RUBBER**

RUBBER-LINED TANKS  
RUBBER-LINED PIPE  
RUBBER-LINED VALVES  
RUBBER-LINED PUMPS  
MOLDED RUBBER GOODS AND MECHANICAL  
PARTS

#### **SYNTHETICS**

TYGON-LINED TANKS  
TYGON-LINED FANS, VENTILATING EQUIPMENT  
TYGON GASKETING  
TYGON FLEXIBLE TUBING  
TYGON PAINTS  
TEMPRO-TEC NON-ADHESIVE FILMS  
MOLDED TYGON GOODS AND MECHANICAL  
PARTS  
TYGON-COVERED ROLLS  
TYGON-COVERED PLATING HOOKS AND RACKS  
RESILON TANK LININGS  
RESILON CEMENTS  
RESILON FLOOR MEMBRANES

#### BUSINESS FORUM ON AIR

NEW YORK CITY, Jan. 15—Business forum of the Commerce & Industry Association on radio station WMCA Friday night discussed "N.Y.—The Chemical Center." Speakers were Dr. W. S. Landis, American Cyanamid Co.; Prof. Ross A. Baker, College of the City of New York; Hugh Craig, Editor, Oil, Paint & Drug Reporter, and Neal Becker, association's president.

#### JUNIOR CHEMICAL ENGINEERS TO MEET

NEW YORK CITY—The Junior Chemical Engineers of New York will meet Jan. 22 at Child's Restaurant, 109 West 42d St. Dr. H. C. Parmelee, editor of the Engineering & Mining Journal will be the speaker. His topic will be "Self Expression—the Key to Engineering Success."

#### ACS SPRING MEETING TO DETROIT

American Chemical Society will hold its next meeting in Detroit, April 12 to 16. Scheduled as a "war meeting," usual plant trips and entertainment will be omitted. Hotels Statler and Book-Cadillac are joint headquarters for the meeting. Program will be published March 25.

#### 18TH ANNUAL DCAT DINNER MARCH 4

NEW YORK CITY—The 18th annual dinner of the Drug, Chemical and Allied Trades Section, N. Y. Board of Trade, will be held at the Waldorf-Astoria, March 4. Following the precedent set last year, a war charity will be given the entire benefits of the affair. Victor E. Williams, Monsanto Chemical Co., is chairman of the section.

#### PERSONNEL

Berrien C. Eaton, president of Eaton-Clark Co., Detroit, now on duty in the Office of the Chief, Chemical Warfare Service, Washington, D. C. has been promoted to Major . . . F. C. Frey has been made sales manager of bulk products and Dr. A. P. Hellwig sales manager of specialty products for American Maize-Products Co., N. Y. City . . . John Stebe, vice-president in charge of exports of McKesson & Robbins celebrates his 50th anniversary with the firm on Feb. 23.

#### ROSENTHAL CELEBRATES 25TH ANNIVERSARY

NEW YORK CITY—H. H. Rosenthal Co., this month celebrates its 25th anniversary in the chemical field. Founded in 1918 by H. H. Rosenthal, the firm consolidated in 1926 with H. B. Bercow Co.

#### CHEMICAL MARKET ACTIVE

NEW YORK CITY—Export demand for alkalies is pretty good. The whole domestic market gets increasingly strong. Glass container manufacturers are buying plenty of chemicals to keep up with their needs. Copperas is finding more and more uses in the war effort. Non-essential users will probably find their sources of supply diminishing. Contracts placed for industrial chemicals for delivery over the current year point to a tremendous tonnage. Flame-proofing chemicals are selling like "sixty". Heavy quantities of naphthalene flakes

are moving out against priority orders. Phenol producers are having a tough time keeping up with the unprecedented demands. Putty makers are now using domestic whiting now that imported English chalk is no longer available for production.

#### WAR IS HELL ON THE POCKETBOOK, TOO

WASHINGTON, Jan. 16—War expenditures by the U. S. Government in 1942 totaled \$52,406,000,000—more than 3.8 times the \$13,895,000,000 spent in 1941. Average daily rate of expenditure during the 310 days on which checks were cleared was \$169,100,000. In 305 days on which checks were cleared in 1941, the figure was \$45,600,000. During the month of December war expenditure totaled \$6,125,000,000, an increase of \$13,000,000 over November. November expenditures were \$390,000,000 higher than those of October.

#### CHANGE PHONE NUMBER

CHICAGO, Jan. 15—In order to increase the telephone facilities of Wishnick-Tumpeer, Inc. and Pioneer Asphalt Co. in wartime, the telephone number has been changed, for both companies, to Whitehall 5900.

#### URGE POOLING OF PLASTICS MACHINERY

WASHINGTON, Jan. 14—Chemicals Division, War Production Board, today urged the molded plastics industry to pool its available machinery, production knowledge and technique to insure adequate facilities for military requirements for molded and extruded thermoplastic parts. Critical shortage of metals and rubber for military needs makes it imperative to use every possible material suitable for metal and rubber replacement. Molded and extruded thermoplastics are two of these replacement materials. The armed forces need the industry's injection molding machines and extrusion machines, production knowledge and technical knowledge, to supply them with necessary military equipment. The machines in greatest demand for war production are injection molding machines of a 4-ounce capacity or larger, and extrusion machines of 2-inch size or larger. It has been necessary to eliminate completely, by directive action, the use of metals and rubber from certain products needed by the armed forces. Consequently, molded plastics are a vital necessity for military requirements as they are suitable replacements. While many devices have been made from molded and extruded plastics which must remain a military secret, some of the other war requirements follow: Extruded Plastics—Used for insulation of cables needed in ships, planes and tanks, and for Signal Corps field wire; extruded tubing used for conveying air, gasoline, water and chemicals, hydraulic systems, refrigeration apparatus, non-corrosive replacements for stainless steel piping in chemical plants.

Molded Plastics—Quartermaster Corps: canteens, toothbrush handles, signal whistles, bugles, snap fasteners for tents, etc., insignia for uniforms, grommets, flashlight cases and lenses, razor boxes. Navy: fire control devices, instrument dial covers, flashlight cases and lenses, communications equipment. Air Force: instruments, battery cases, knobs, control wheels and handles, ammunition belts. Signal Corps: insulation devices, phone and radio set parts.

*I hear Blaw-Knox  
builds these  
Process Plants*



*Yes—complete  
from idea to  
operation*



Whatever your Process—depend on Blaw-Knox to do the whole job. Research, engineering, fabrication, erection, initial operation—all under the single guarantee and single responsibility of Blaw-Knox!

**BLAW-KNOX DIVISION OF BLAW-KNOX CO.**

2025 FARMERS BANK BUILDING PITTSBURGH, PA.  
New York Philadelphia Chicago Birmingham Washington

Complete plants or equipment for the following processes . . .

Distillation	Kilning and	Organic Synthesis
Gas Absorption	Calcining	Emulsification
Solvent Extraction	Polymerizing	High Pressure
Solvent Recovery	Evaporation	Processing
Heat Transfer	CrySTALLIZATION	Impregnating
Furnacing	Drying	Gas Cleaning
Cracking	Mixing and Stirring	and others

**BLAW-KNOX** builds complete **PROCESS PLANTS**

## Why Tommy doesn't have Typhoid

The answer is water chlorination that destroys typhoid and a host of other harmful germs. But have you ever wondered how water-treatment engineers check completeness of the kill?

Standard is the Ortho Tolidin Test for residual chlorine . . . based on the fact that active chlorine in amounts necessary to make water safe gives a greenish-yellow color reaction with Ortho Tolidin. So sensitive is this test that residual chlorine can be detected, down to 0.3 parts per million.

Ortho Tolidin is one of many National Dyes that are made to exacting standards of quality in National Pharmaceutical Laboratories. Protecting water purity is one of many examples of how National Research is expanding the usefulness of National dyestuffs, intermediates and synthetic organic chemicals.

### NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

NEW YORK, N. Y.

40 RECTOR STREET

BOSTON  
PROVIDENCE  
CHICAGO

PHILADELPHIA  
SAN FRANCISCO  
CHARLOTTE

GREENSBORO  
ATLANTA  
NEW ORLEANS

CHATTANOOGA  
PORTLAND, ORE.  
TORONTO



# 10

## MAJOR ADVANTAGES of Poly-Pale Resin

—a polymerized  
rosin developed by Hercules

- ① Melting point is higher by 15 to 20°C. than that of regular rosins.
- ② Does not crystalize in solution.
- ③ It is soluble in almost all common solvents.
- ④ It dissolves quickly.
- ⑤ Solutions are higher in viscosity than those of regular rosins.
- ⑥ Less glycerin needed in esterification.
- ⑦ Higher melting point is achieved without the addition of any metals.
- ⑧ Advantages are carried over into derivatives, such as synthetic resins and resinsates.
- ⑨ Available in two pale grades, WG and N.
- ⑩ Poly-pale is available in quantity at prices only a fraction of a cent over the palest grades of natural rosin.

You'll find extensive technical data on this valuable new material in the revised 2nd edition of the booklet "Poly-Pale Resin." Mail coupon for your free copy.



**HERCULES**  
CHEMICALS FOR INDUSTRY



Naval Stores Department,  
**HERCULES POWDER COMPANY**  
INCORPORATED  
992 Market Street, Wilmington, Delaware  
Please send me the 2nd edition of "Poly-Pale Resin."

NAME .....

COMPANY .....

ADDRESS .....

LL-89

## CHEMICAL STONEWARE



**CANNOT CORRODE — CANNOT LEAK!**

**C**OSTLY shut-downs due to corroded, leaky chemical handling equipment *can* be completely eliminated by installing General Ceramics Chemical Stoneware equipment.

Chemical Stoneware's tough acid proof construction eliminates the possibility of any leakage and reduces hazards to employees and property. It is durable, too, for once installed Chemical Stoneware equipment is there for keeps — it's practical insurance against costly replacements and maintenance. Its glazed surface is easy to keep clean, to avoid contaminating products handled.

The acid elevator shown here made in capacities up to 200 gallons, is only one of the many adaptations of Chemical Stoneware. Special shapes often cost very little more than standard items. *Why not write General Ceramics today for a new complete bulletin?*



3412

# Chemicals FOR PETROLEUM



Today, more than ever, we in America have become petroleum conscious due to rationing and the increased consumption of petroleum products in the prosecution of the war.

But long before the present crisis, Stauffer was supplying the petroleum industry with chemicals. In fact, Stauffer has been serving every American industry with a long list of chemicals since 1885.



Borax  
Boric Acid  
Carbon Bisulphide  
Carbon Tetrachloride  
Caustic Soda  
Citric Acid  
\*Commercial Muriatic Acid  
\*Commercial Nitric Acid  
\*Copperas  
Cream of Tartar  
Liquid Chlorine

Nitrate of Potash  
Silicon Tetrachloride  
Sodium Hydrosulphide  
Stripper, Textile  
\*Sulphate of Alumina  
Sulphur  
Sulphuric Acid  
Sulphur Chloride  
\*Superphosphate  
Tartaric Acid  
Titanium Tetrachloride

Tartar Emetic

\*Items marked with star are sold on West Coast only.

420 LEXINGTON AVE., NEW YORK, N. Y.  
230 NO. MICH. AVE., CHICAGO, ILL.  
624 CALIFORNIA ST., SAN FRANCISCO, CAL.

## STAUFFER CHEMICAL COMPANY

555 SO. FLOWER ST., LOS ANGELES, CAL.  
424 OHIO BUILDING, AKRON, OHIO  
NORTH PORTLAND, OREGON  
FREEPORT, TEXAS    APOPKA, FLORIDA

---

# Introducing



## dl - Calcium Pantothenate - Nopco\*

Racemic mixture of calcium pantothenate . . . a white, odorless, powder . . . especially designed to provide a more economical source of pantothenic acid.

For those pharmaceutical and food manufacturers who require the pure dextrorotatory product, we offer

### Calcium Pantothenate Dextrorotatory — Nopco\*

A white, odorless, crystalline salt.

Technical data sheets on either product sent on request

\*products of



**CHEMICAL  
COMPANY**

a subsidiary of  
National Oil Products Company  
**HARRISON, N. J.**

# For Dependable Fine Chemicals *Specify*



## HEYDEN

*Write for Current*

*Products List*

### *Formaldehyde*

U. S. P. Solution

37% by Weight • 40% by Volume

A water-white solution of full strength and high uniform quality

CARBOYS • DRUMS • TANK TRUCKS • TANK CARS

### PARAFORMALDEHYDE

U. S. P. X.

Powder • Small Flo-Granules • Large Granules  
Fine White Color • Complete Solubility

### HEXAMETHYLENETETRAMINE

U. S. P. and Technical • Powder and Granular

### SALICYLIC ACID • METHYL SALICYLATE

### PENTAERYTHRITOL

BENZOATE OF SODA • BENZOIC ACID

BENZYL CHLORIDE • BENZYLDEHYDE

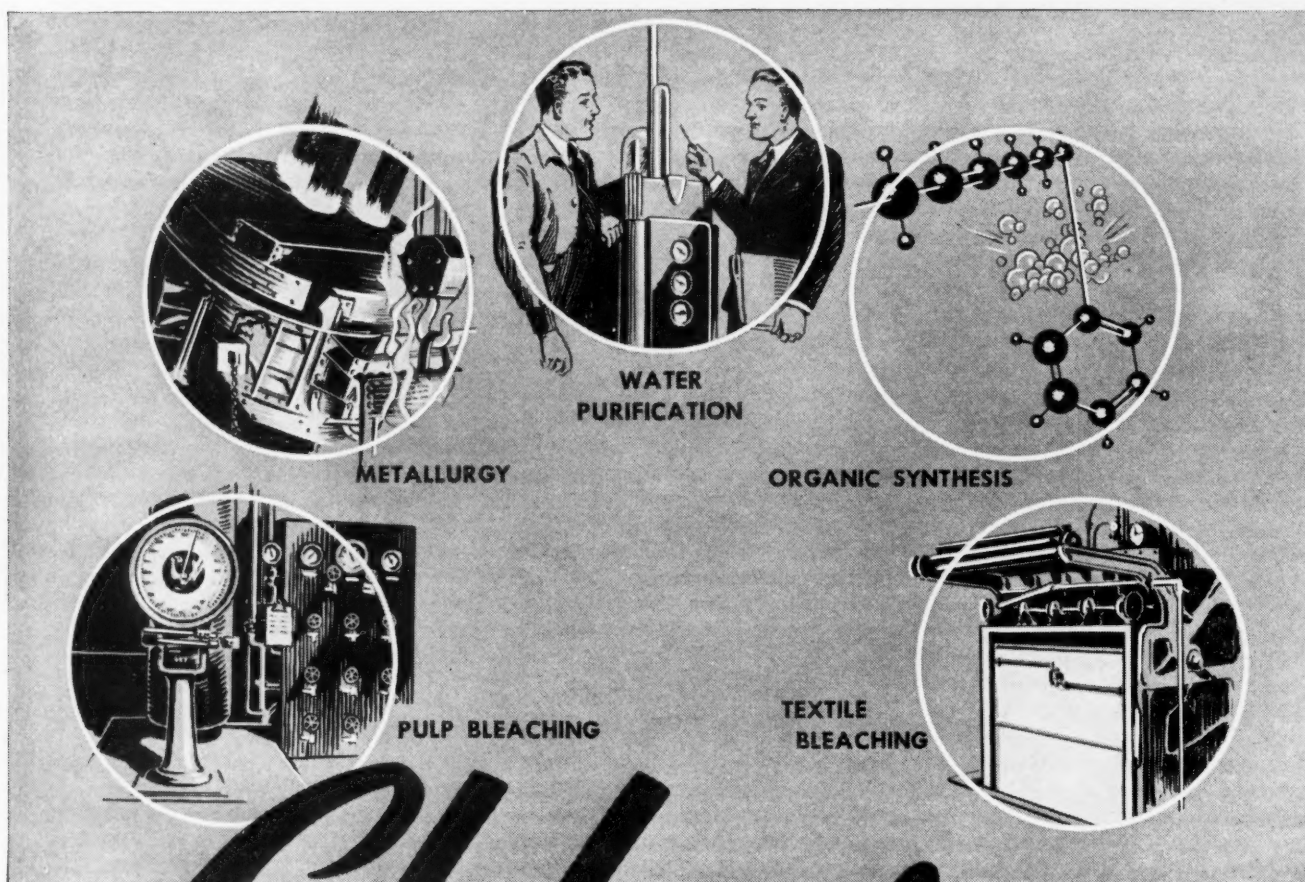
### BROMIDES

### PARA TOLUIDINE

## HEYDEN Chemical Corporation

50 UNION SQUARE, NEW YORK, N. Y.

CHICAGO BRANCH: 180 N. WACKER DR.



# Chlorine

## CHEMICAL SERVANT EXTRAORDINARY

In a century and a half of industrial development chlorine has become one of man's most useful chemical servants. Its first commercial application was made in 1799 by Charles Tennant, who manufactured bleaching powder for textile manufacturers.

In 1800 Tennant produced a few tons of bleaching powder. Today chemical plants in America are turning out well over a million tons of chlorine—much of which has been drafted for wartime military and industrial effort.

Penn Salt pioneered in the production of liquid chlorine, being first to

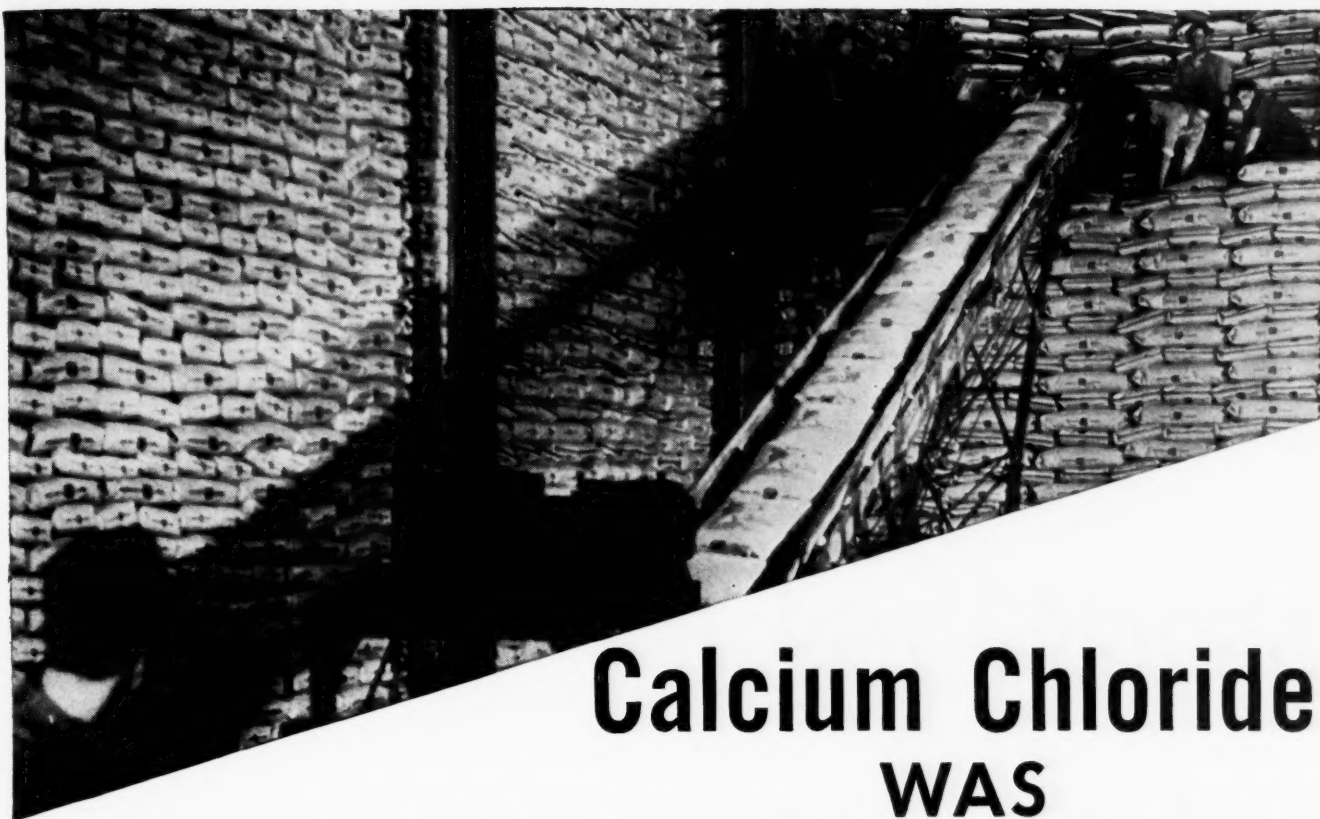
manufacture it in commercial quantities. The first tank car of this essential chemical was shipped from our Wyandotte, Michigan, works in 1909. Our operations have continued to expand since that time until today our Wyandotte and Tacoma works are among the largest chlorine producers in the United States.

As a result of our increased production of chlorine for today's wartime uses, we are able to look forward to the promise of even greater peacetime possibilities.

**PENN SALT**  
*Chemicals*



Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia, Pa.  
Branch Offices: New York • Chicago • St. Louis • Pittsburgh • Wyandotte • Tacoma



# Calcium Chloride WAS a difficult product to pack in paper bags

Packaged at approximately 205° F. . . so hygroscopic that moderate moisture cakes it . . . so deliquescent that excessive moisture sends it into solution . . . calcium chloride must be delivered *dry* and *free-flowing*.

Several years ago a prominent manufacturer of  $\text{CaCl}_2$  asked us if we could design an economical, one-trip container to replace expensive steel drums which are bulky to store and require extra bookkeeping.

Multiwall Paper Bags, amply strong at temperatures of 350° F., and above, have been used for years for

packing many products. To meet the other requirements St. Regis engineers developed a sheet of kraft paper highly resistant to air-borne moisture and to capillary action through the fibres.

Six months shipping and storage tests of these custom-built Multiwall Paper Bags proved their durability and moisture-resistance. Production of 6 to 8 100 lb. bags per minute was attained on a St. Regis Packer . . . the bags were inexpensive . . . the 100 lb. bag was adopted for  $\text{CaCl}_2$  . . . and has been used ever since.

You may have a packaging problem before you now for which paper may seem as far-fetched as it *appeared* to be for calcium chloride and many other chemicals. Perhaps we can help you?



Offices also at:  
Baltimore, Md.

Birmingham, Ala.  
Dallas, Tex.

Denver, Colo.  
Franklin, Va.

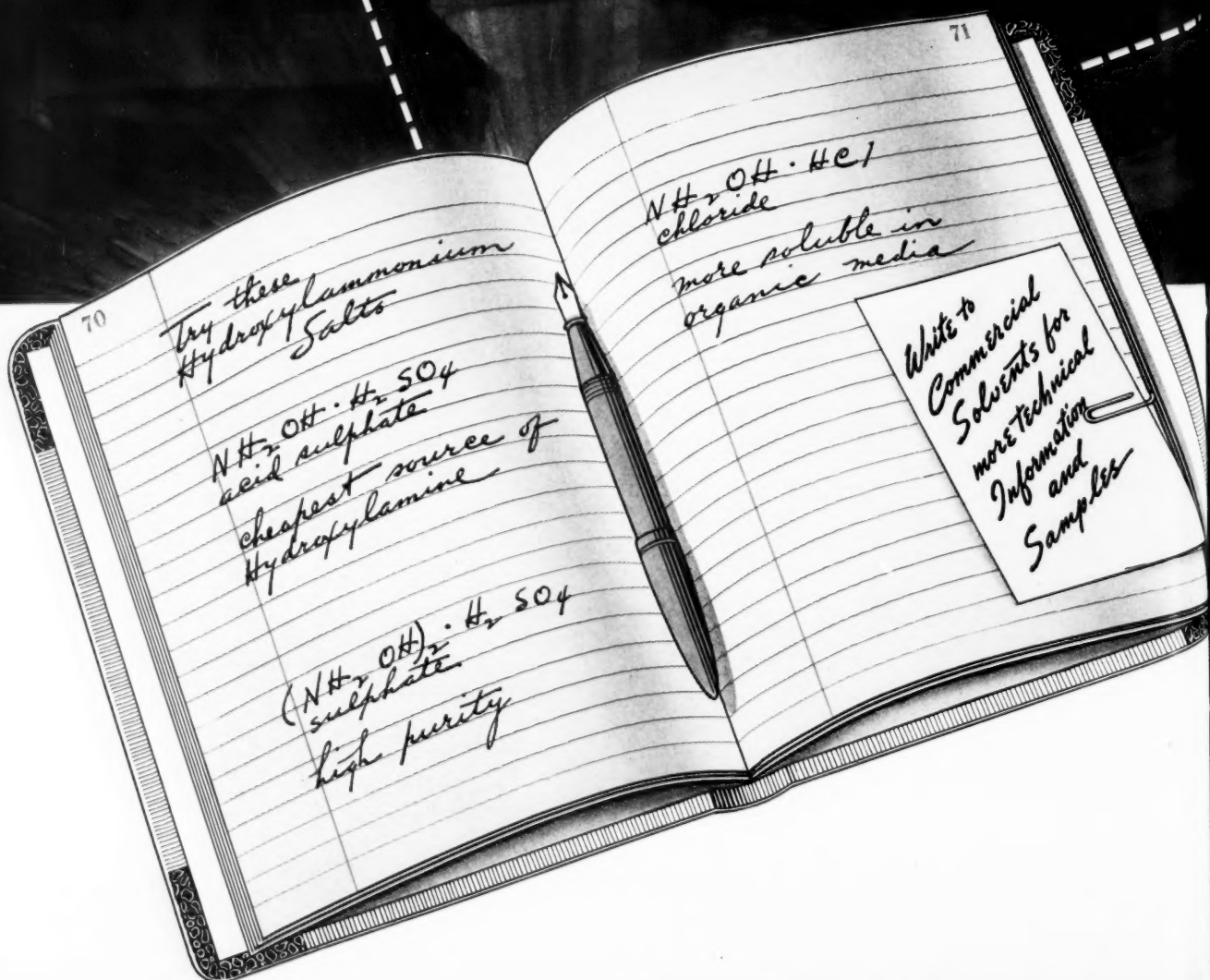
Los Angeles, Calif.  
Nazareth, Pa.

New Orleans, La.  
San Francisco, Calif.

Seattle, Wash.  
Toledo, Ohio

# NEW CHEMICALS

*that will build New Industries*

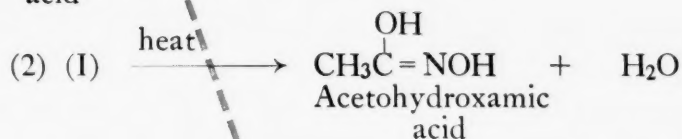
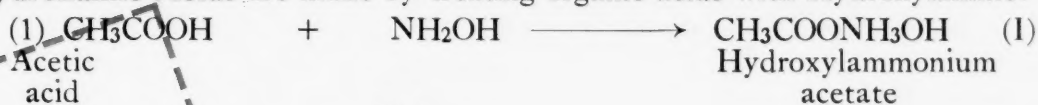


## TYPICAL REACTIONS WITH HYDROXYLAMINE

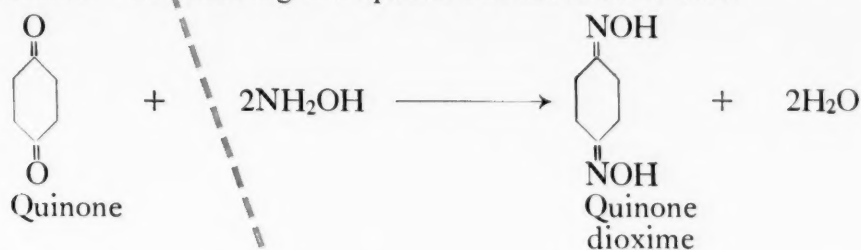
**Aldoximes** and **Ketoximes** are obtained by the reaction between Hydroxylamine and aldehydes or ketones, respectively:



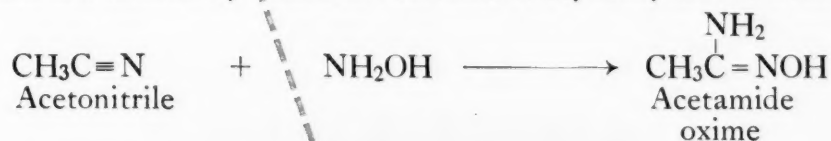
**Hydroxamic Acids** are made by treating organic acids with Hydroxylamine:



**Aromatic Oximes** result from the reaction of aromatic ketones or aldehydes with Hydroxylamine. The following is a special but illustrative case:



**Amidoximes** are formed by addition reactions of Hydroxylamine with nitriles:



# COMMERCIAL SOLVENTS

## Corporation

17 EAST 42ND STREET, NEW YORK, N. Y.



**"The Nitroparaffins—  
New Worlds for Chem-  
ical Exploration"** con-  
tains many helpful sug-  
gestions. Write for a copy.

**LUMBER  
INDUSTRY**Stainproofing  
Fireproofing  
Barrel Sizing  
Plywood**ABRASIVES**Grinding Wheel  
Bonding**HIGHWAYS**Curing  
Concrete**TEXTILES**Peroxide Bleaching  
Kier Boiling  
Soaping Prints  
Silk Weighting  
Scouring**CHEMICAL  
COMPOUNDS**Boiler Compounds  
Welding Rod  
Coatings**MINING  
INDUSTRY**Ore  
Flotation

# To meet your Wartime Requirements

**FIBRE  
WALLBOARD**

Adhesives

**FARMS**Egg  
Preserving**CERAMICS**Plasticity Control  
Refractory Cements  
Frits  
Furnace and Stove  
Cements**BUILDING  
TRADES**Dustproofing  
Cement Floors  
Acid-proof  
Cements  
Paints**LAUNDRY  
INDUSTRY**

Detergents

**OIL  
INDUSTRY**Reclaiming  
Crank-case Oil  
Asphalt Emulsions  
Oil Wells**PAPER  
MAKING**Coatings  
Sizing  
De-Inking  
Pulp Bleaching  
Fireproofing**ASBESTOS  
PRODUCTS**Combining  
Adhesive**METAL  
CLEANING**

Cleaning Compounds

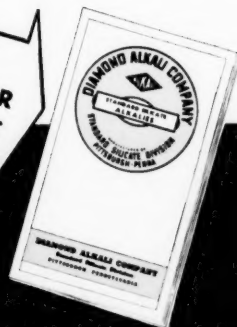
**PAPER  
PRODUCTS**Grease Proofing  
Corrugated Boxes  
Solid Fibre Boxes  
Sealing Boxes**SOAP &  
DETERGENTS**Powdered Soaps  
Built Soaps  
Cleaning Compounds  
Oil Refining**WATER  
WORKS**Clarification  
Corrosion  
Inhibitor

THE RIGHT GRADE  
OF DEPENDABLE  
SILICATES *plus*

## STANDARD TECHNICAL SERVICE

*Conserves  
Materials..  
Speeds  
Production*

Send  
FOR  
BOOKLET



### DIAMOND ALKALI COMPANY

Standard Silicate Division

General Offices: PITTSBURGH, PA.

Plants at CINCINNATI; JERSEY CITY;

LOCKPORT, NEW YORK;

MARSEILLES, ILLINOIS; DALLAS, TEXAS

# DID YOU EVER PULL THE TRIGGER

## ON A TEST TUBE?

**T**HE test tube is a mighty weapon in this war. It is the birthplace of strategic materials America must have to win.

But the contents of a test tube mean little until the results of the experiments are put into full-scale production. That takes time—and wars won't wait.

In the vital chemical and petroleum industries today, Badger is helping to cut down the precious time required to turn the findings of the test tube into a completed, working plant.

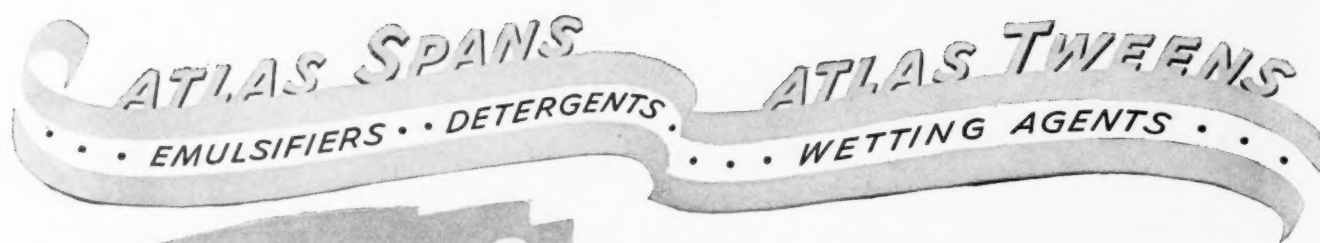
Badger directs the process all of the way—from the first blueprint to the first blow of the whistle! With its large staffs of engineers, chemists, draftsmen, designers and construction workers, Badger gives the unified, co-ordinated effort that speeds production.

Today, with our nation fighting for its very existence, Badger is serving the petro-chemical industries—building plants and equipment for the manufacture of T.N.T., butadiene, alcohol, aviation gasoline, and many other critical war materials. Tomorrow, when the peace is won, Badger will help convert the miracles of wartime test tubes into a greater service for a greater America.

**E. B. Badger**  
**AND SONS COMPANY**  
**BOSTON . . . . EST. 1841**

NEW YORK • PHILADELPHIA  
SAN FRANCISCO • LONDON

PROCESS ENGINEERS AND CONSTRUCTORS FOR THE PETRO-CHEMICAL INDUSTRIES



# *New* Surface Active Agents

## ATLAS Spans and ATLAS Tweens

### To Meet New and Unusual Demands

Atlas Spans and Atlas Tweens are new emulsifiers with remarkable properties. They may prove to be just the thing to meet the present unusual specifications . . . or to improve those new combinations of oils and water that you are working out for the future.

*You should investigate them. Here is why:*

**New Effects**—Atlas Spans and Atlas Tweens are unusual in the field of emulsifying agents. They are a series of both simple and modified partial fatty acid esters of hexitol anhydrides. They are non-electrolytes. They are supplied in 97% to 100% concentrations. They are neither sulfates nor sulfonated products. They are virtually free of soap and inorganic salts. This makes possible a whole range of new types of applications.

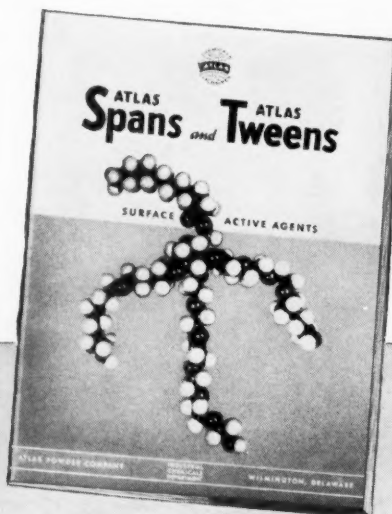
**Wide Application**—Atlas Spans and Atlas Tweens are versatile. They include emulsifiers for water-in-oil and oil-in-water emulsions of either the temporary or permanently stable types that hold up not only with hard water but with salts and acids. Their solubilities range from completely water soluble to completely oil soluble. The series offer a wide choice in viscosity, water holding power and compatibility.

**Better Emulsions**—Atlas Spans and Atlas Tweens are adaptable. An unlimited number of intermediate modifications or combinations can be tailor-made to do specific jobs. Because their properties can be so closely balanced to fit the work at hand, they often give more satisfactory finished emulsions than are possible with older, less complex emulsifiers.

*Atlas Spans and Atlas Tweens are used in nearly every field of American industry where oil and water are made to mix. If you have emulsification problems—if you feel that your present results might be improved, a request will bring prompt assistance and samples. Send for book.*



SPAN AND TWEEN—  
Reg. U. S. Pat. Off.



# ATLAS

INDUSTRIAL  
CHEMICALS  
DEPARTMENT

ATLAS POWDER COMPANY, Wilmington, Del. • Offices in principal cities • Cable Address—Atpowco

**IF WPB ORDER L-197 AFFECTS YOU -  
LET US SOLVE YOUR PACKAGING PROBLEMS**

**FOR EFFICIENCY... CLEAN, MOISTURE-PROOF  
WATER-REPELLENT, EASY TO HANDLE.**

**FOR ECONOMY... LOWER INITIAL COST,  
LOWER TARE WEIGHT—LESS SHIPPING CHARGES.**

**FOR VICTORY... MADE ENTIRELY  
FROM NON-CRITICAL  
MATERIALS.**



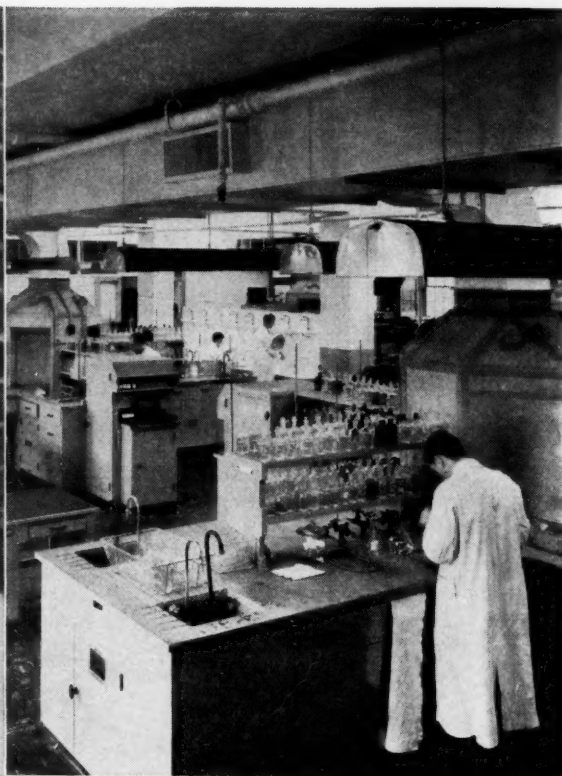
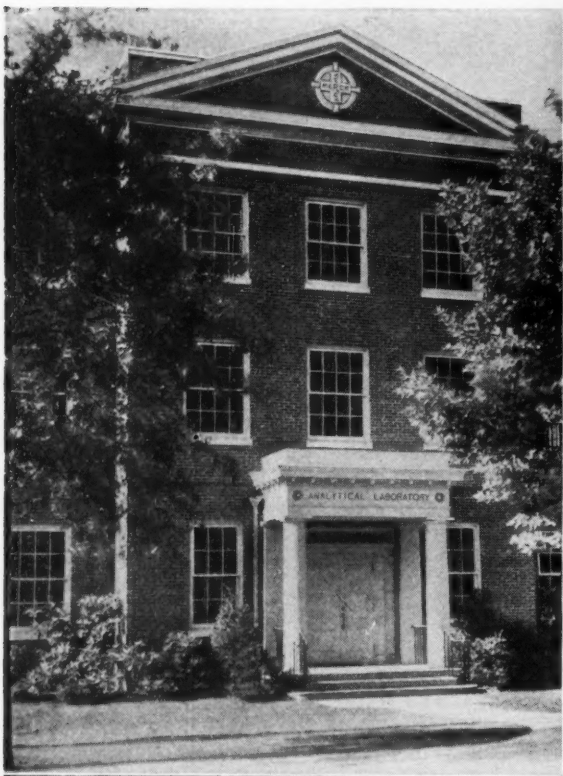
## **BAGPAK HEAVY-DUTY MULTIWALL PAPER BAGS FOR UNITS RANGING FROM 20 TO 140 POUNDS**

Bagpak Heavy-Duty Multiwall paper bags are sift-proof, grease-proof, moisture-proof, water-repellent and offer 100 per cent all-weather protection under the toughest shipping conditions. You will find them a very satisfactory substitute for textile or priority-restricted metal containers.



**BAGPAK**  
**INC**

**BAGPAK, INC. • 220 EAST 42nd STREET • NEW YORK, N. Y.**



### A GUARANTY OF QUALITY

Chemical experience of many years has enabled Merck & Co. Inc. to plan, design and equip the new Merck Analytical Laboratories, wherein rigid and constant control is exercised over more than 1,500 products bearing the Merck label. The extensive facilities for precision analyses and testing include not only chemical methods, but physical and optical procedures as well. Because of these modern control facilities, pharmaceutical manufacturers, and those in allied professions, use Merck Chemicals with complete confidence in their purity and uniformity.

### A PLEDGE OF SERVICE

Although the Merck factories are now operating on a 24-hour day, 7-day week schedule in order to supply the needs of our armed forces and civilian population, it may not always be possible to supply you immediately with your complete requirements of Merck Chemicals. But in spite of the difficulties which confront us, we shall continue to do everything possible to serve our customers to the limit of our ability. In performing the vital emergency job at hand, it is our hope that we may continue to have the understanding cooperation of our customers, which has helped us immeasurably in our efforts to serve them.

*For Victory—Buy War Savings Bonds and Stamps*

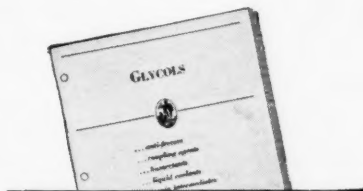
**MERCK & CO. Inc.** *Manufacturing Chemists* **RAHWAY, N. J.**  
 New York, N. Y. • Philadelphia, Pa. • St. Louis, Mo. • Elkton, Va. • Chicago, Ill. • Los Angeles, Cal.  
*In Canada: MERCK & CO. Limited, Montreal and Toronto*

*Ideas for your  
Notebook...*

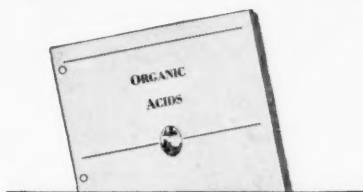
from CARBIDE AND CARBON CHEMICALS CORPORATION

## Literature That Contains Useful Information

AS part of our service to industry, we publish literature describing the properties and uses of the synthetic organic chemicals we make. Five books from this literature are listed and briefly digested below. If any of these are directly useful in your work, you can get a copy by asking for it on your company letterhead. Please refer to the form number in your request.



**Glycols** . . . includes the names, formulas, properties, and uses for the glycols produced by Carbide and Carbon Chemicals Corporation. Numerous graphs on physical properties and a bibliography are also included. 20 pages. 8½ by 11 inches. Form 4763



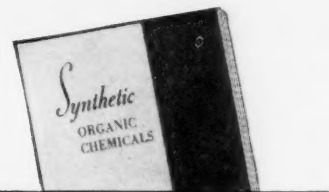
**Organic Acids** . . . is similar to the "Glycols" booklet and includes the names, formulas, properties, and uses of the acids we make, as well as graphs illustrating the physical properties. 12 pages. 8½ by 11 inches. Form 4768

For information concerning the use of these chemicals, address:

**CARBIDE AND CARBON CHEMICALS CORPORATION**

Unit of Union Carbide and Carbon Corporation • 30 East 42nd Street, New York, N. Y.

UCC



**Synthetic Organic Chemicals** . . . includes the names, formulas, properties, and uses of all the chemicals we make in commercial quantities. This is the eleventh edition of this manual of synthetic aliphatic organic chemistry, and incorporates some minor revisions. 100 pages. 8½ by 11 inches. Form 4372A



**Chemicals Available in "Research" Quantities** . . . gives information supplementing the "Synthetic Organic Chemicals" book on 32 new "research" chemicals announced this year. It includes a table of physical properties of the products we make. 16 pages. 8½ by 11 inches. Form 5298



**Solvent Recovery by the "Columbia" Activated Carbon System** . . . describes the "Columbia" activated carbon system of solvent recovery and explains its profitable applications. Other useful applications of "Columbia" activated carbon are also briefly described. 32 pages. 8½ by 11 inches. Form 4410

\* \* \* \*

### Other Information

Loose-leaf data sheets . . . including graphs of physical properties . . . are available for many of the 160 synthetic organic chemicals produced by Carbide and Carbon Chemicals Corporation. Ask for those in which you are interested.

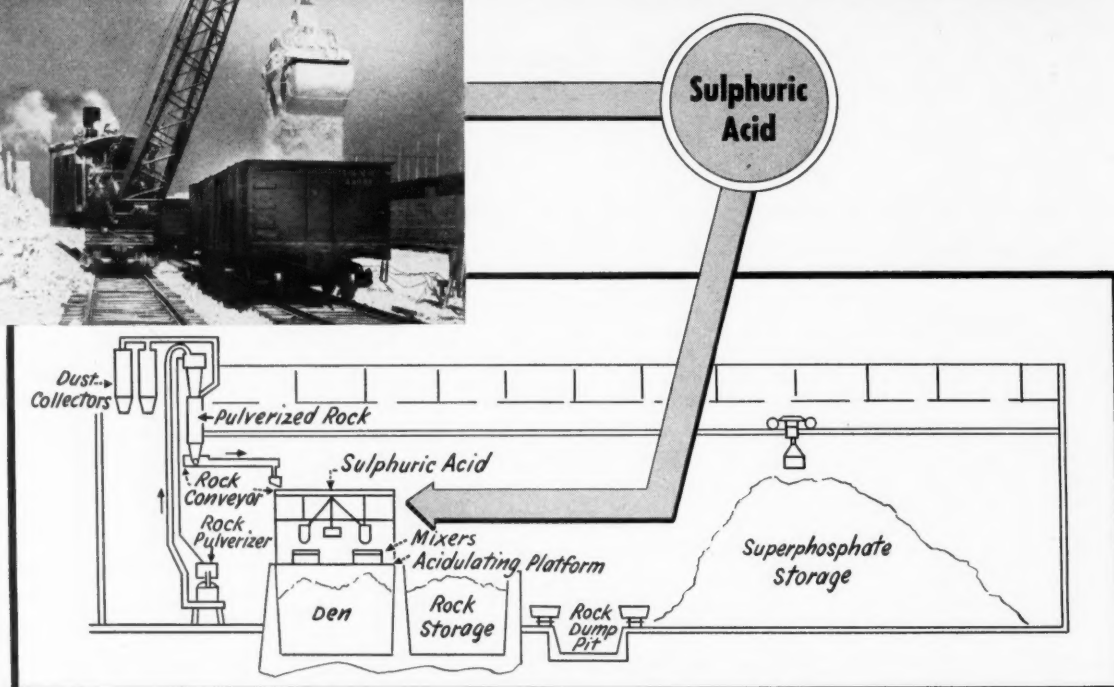
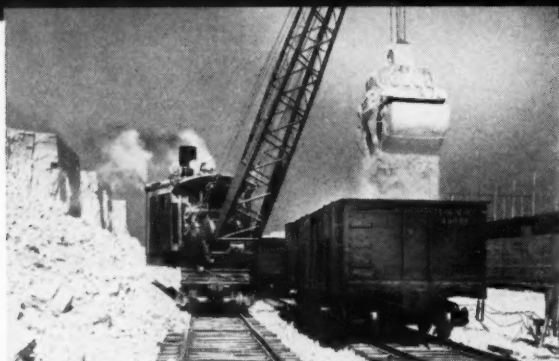


PRODUCERS OF SYNTHETIC



ORGANIC CHEMICALS

# HOW **SULPHUR** SERVES INDUSTRY



## FERTILIZERS

{ Superphosphate }

Phosphate rock is crushed fine and graded. A half ton of rock is then mixed with a half ton of 50° Be' sulphuric acid. This rather soupy mass drops into a den where in several hours the acidulation reaction is completed. After curing, the superphosphate is ready for shipment.

Good fertilizer means good crops and in the preparation of good fertilizers, sulphuric acid plays its part. Sulphuric acid makes the phosphorous in phosphate rock available for plants. It also forms in the fertilizer a sulphur compound which protects plants against Sulphur hunger.

It is indeed fortunate that our supplies of phosphate fertilizer need not be threatened by shortages of Sulphur. The Texas Gulf Sulphur Company has in stock ready for shipment enough Sulphur to supply the fertilizer industry and all other Sulphur-consuming industries for a year or more.

**TEXAS GULF SULPHUR CO.**  
 75 E. 45<sup>th</sup> Street New York City  
 Mines: Newgulf and Long Point, Texas

1-TG-1

# TWO SUPER REFRACTORIES THAT OPERATE SAFELY AT 3200° AND 4000° F

TAM Zircon (Zirconium Silicate) refractories operate safely at temperatures over 3200° F. while TAM Zirconium Oxide refractories are used in applications over 4000° F.

These two TAM super refractories resist acids and oxidizing atmospheres. They are being successfully used in the manufacture of phos-

phates, fused silica, aluminum melting and platinum smelting. They are also widely used as crucible backing and for various high temperature applications.

An experienced staff of field engineers located in various parts of the country are available for consultations without obligation. Write:

## TAM PRODUCTS INCLUDE

Zircon bricks, special shapes and crucibles... Zircon insulating refractories... Zircon ramming mixes, cements and grog... Zircon milled and granular... Electrically Fused Zirconium Oxide Refractories... Electrically Fused Zirconium Oxide cements and ramming mixes... Electrically Fused Zirconium Oxide in various mesh sizes.

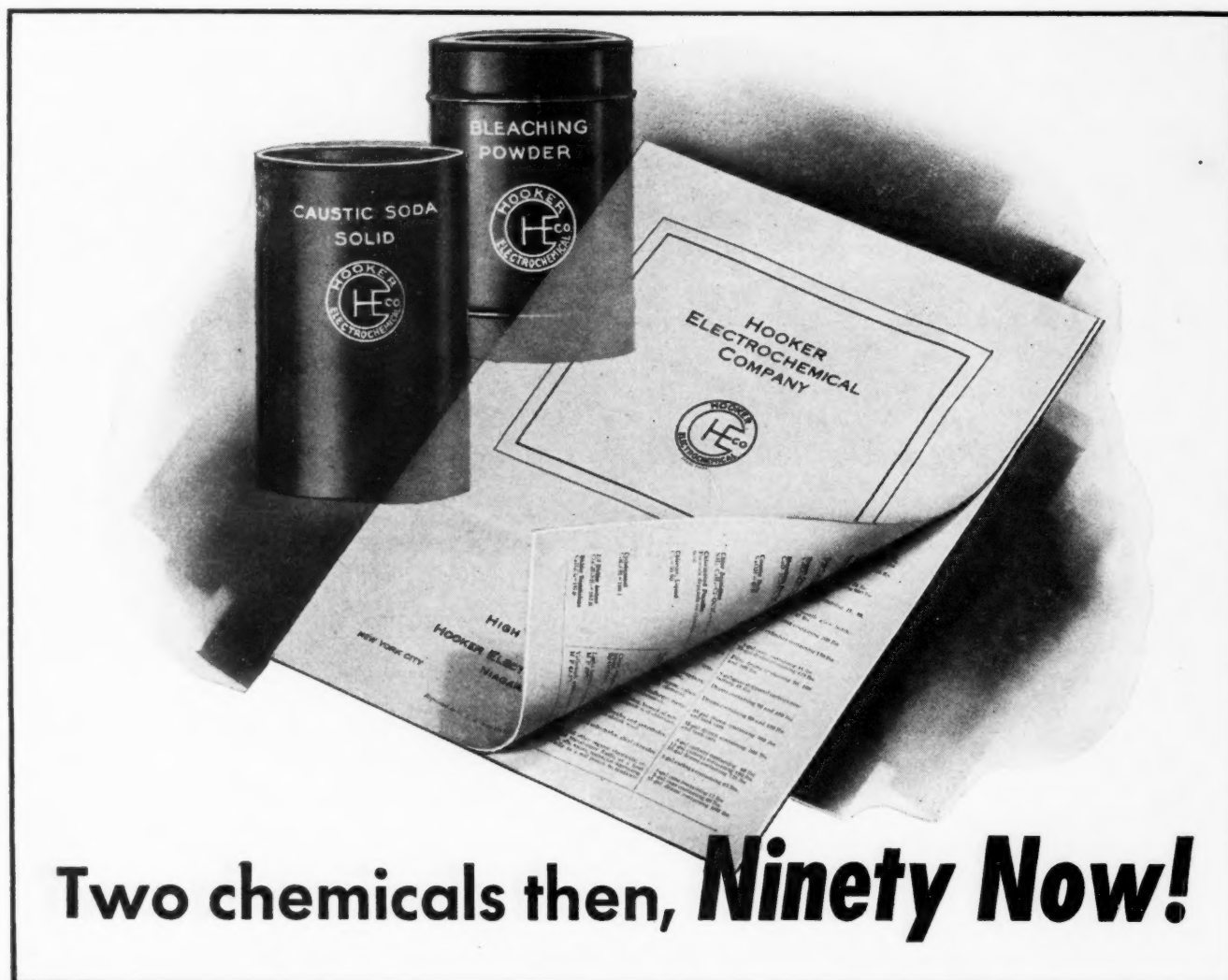


## TITANIUM


ALLOY MANUFACTURING COMPANY

**GENERAL OFFICES AND WORKS: NIAGARA FALLS, N. Y., U. S. A.**  
**EXECUTIVE OFFICES: 111 BROADWAY, NEW YORK CITY**

Representatives for the Pacific Coast States . . . L. H. BUTCHER COMPANY, Los Angeles, San Francisco, Portland, Seattle  
Representatives for Europe . . . UNION OXIDE & CHEMICAL CO., Ltd., Plantation House, Fenchurch St., London, E. C., Eng.



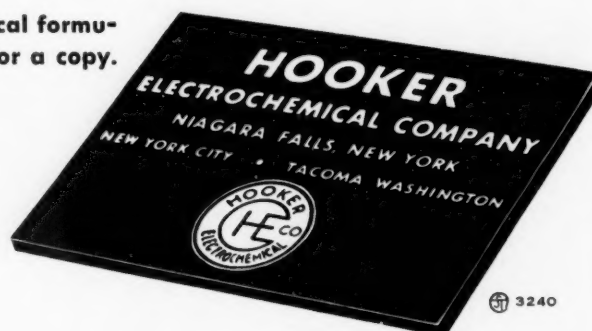
# Two chemicals then, *Ninety Now!*



Two chemicals — Caustic Soda and Bleaching Powder—manufactured in the early days of HOOKER—have grown to ninety. Twenty of these were added to HOOKER production and sales during 1941 — and the list is still growing. This steady growth is a direct indication of chemistry's ever-increasing importance in the present war—and of HOOKER'S successful efforts to serve the Nation.

HOOKER Chlorine derivatives typify the wide range of chemistry's contribution to the war effort. Many are being used directly in the war effort, while others are used in the production of dental, surgical and other medicinal preparations, synthetic rubber, high-octane gasoline, rayon, and compounds for waterproofing and flameproofing textiles.

The newest printed list of HOOKER products includes chemical formulas, descriptions, uses and shipping container data. Write for a copy.





## Put a stop watch on this operation

Unless up to fifty packages pass a given point on your production line every minute, chances are you could speed up packing with the Deltaseal system.

Efficient Bemis Deltaseal machines shape and seal Deltaseal Bags automatically and at speeds to coordinate with other plant operations.

And Deltaseal paper bags with their easily formed pouring spout and attractive brand printing are real salesmen for the products they carry.



**BEMIS BRO. BAG CO.**

Headquarters for the

# DELTASEAL System of PACKAGING

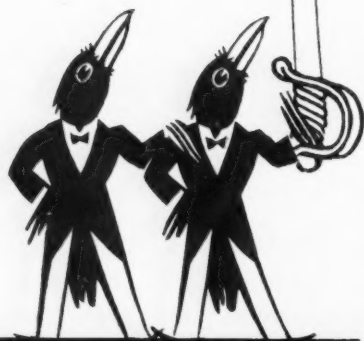
Minneapolis, Minnesota

OFFICES: Baltimore • Boston • Brooklyn  
Buffalo • Charlotte • Chicago • Denver  
Detroit • E. Pepperell • Houston  
Indianapolis • Kansas City • Los Angeles



Louisville • Memphis • New Orleans • New  
York City • Norfolk • Oklahoma City  
Omaha • Peoria • St. Louis • Salina • Salt  
Lake City • San Francisco • Seattle • Wichita

# Natural BICHROMATES *for Victory*



"BUY CROW-MATES"

## MARCHING IN COMFORT —THANKS TO "NATURAL"

EVERY 100 pounds of shoes which our soldiers wear requires in its manufacture the chromium from about seven pounds of bichromate of soda. Thanks to chrome tanning, our Army's shoe leather is softer and stronger—shoes are more comfortable and last longer. Without foot comfort on the march Victory would be all the harder to achieve.

Shoes and many other leather articles and parts used by our armed forces are taking a large share of "Natural's" production. Most of the remainder goes in the processing of other vital war products. We ask the forbearance of manufacturers without priority ratings and look forward to the days after Victory when we can go "all out" for peace—with larger and better facilities than ever.

### NATURAL PRODUCTS REFINING CO.

904 Garfield Avenue

Jersey City, N. J.

## Winning The War On Two Fronts



Just twelve months ago a plethora of reasons existed in the minds of all of us for believing that the war might last five and even ten years before the Axis Nations were brought to their knees. However, the dark and uncertain days of the first half of 1942 hap-

pily are now well behind us, and while a long and tortuous road is still ahead to be traveled before final victory is assured, nevertheless we now can and should begin to formulate some fairly definite postwar plans. Hitler may be defeated by the end of 1943 and Japan by the end of the following year. Even if we take a less optimistic viewpoint and assume that our enemies are not defeated until some time in 1945, we still will need every precious moment of 1943 for the dual job of whipping the Axis and determining a workable postwar pattern for this badly disarranged world of ours.

Those who are giving serious thought to this latter problem certainly do not need to apologize for such action, if, indeed, any apologies were necessary six months ago. We are fighting the greatest war in all history to win a permanent peace and lasting just peace—not merely a spectacular but hollow military victory.

The task before us is much more complicated than it was in the last war when we failed to achieve our principal aims. The reasons why this is so are well known and perfectly obvious but will bear repetition. The present conflict is truly a global war. All nations and all the peoples on this earth are affected. The dislocation of peacetime industry and commercial activities is much greater than it was in World War 1, and there is a much more serious clash of fundamental concepts of human relationships.

Industry and industrial leaders must assume a very positive and progressive stand on the matter of postwar planning. There are many highly intelligent business leaders who frankly are saying that the war has given private enterprise what well may be its last chance to justify its existence. Many of our prominent business men are convinced that the public will not tolerate for long a period of idle machines and unemployed men and women, of want and suffering in the midst of an

abundant supply of raw materials. It is now recognized that jobs for all must be created in order to keep the wheels of private industry humming or we will face a crisis when alternatives such as state socialism or even worse will be proposed.

The opportunities are present for a healthy postwar period. If inflation is controlled satisfactorily we will have savings of well over a hundred billion dollars in the hands of consumers by the end of 1943. A tremendous backlog of unfilled needs will exist and there will be plenty of money available. When the war ends there will exist the necessity for making huge capital investments to replace obsolete and worn out equipment, and, of still far greater significance, there will arise an insistent demand for capital investment to provide machinery for large scale production of brand new goods and materials for peacetime needs which were developed in our laboratories originally for war purposes.

Fortunately our more progressive business leaders are fully aware of what must be done and done quickly once hostilities end. On their own initiative leading industrialists have completed the basic organization of a peace-planning group, the Committee for Economic Development, and are striving to provide jobs for some 55 million workers in the postwar period. It must be borne constantly in mind, however, by those who will lay the groundwork for postwar planning that most of the emphasis must be placed on a postwar marketing pattern and not on past and now fairly obsolete prewar performances. A fresh new viewpoint must be taken and this will call for great imagination and clear-sighted vision on the part of our industrialists, labor leaders and those who will determine governmental relationships with business and labor. The task ahead is such that we must have super-intelligent planning, conversion from war to peace must be made with but a very minimum of delay, a sound and workable basis must be found for a closer relationship between capital, management and labor, and last, but certainly not least, capital, and that means the man or organization with millions or the individual with a hundred dollars to invest, must be unfettered from the chains which now renders it impotent. Clearly there are really two problems to be met. One the immediate postwar era and then the period with a long-term significance when we will either build along lines that will remove the causes of war or we will revert to the practices that helped to produce a Hitler.

**The Outlook In The Patents Picture:** Tremendous interest has been aroused by the recent article in this publication entitled "The Importance of Invention to the Nation." This discussion, of one of the most timely subjects now engaging the attention of the American public, has brought about an avalanche of letters, and, in some instances, rather lengthy manuscripts have reached the editorial desk. This is, indeed, a very healthy sign, for it does prove that business men and technologists in this country are aware of the danger of letting go unanswered many reckless charges made, in some instances, by responsible officers of the federal government.

One of the most encouraging aspects to be discerned in reading this mass of correspondence is that there is, generally speaking, full recognition that certain changes are necessary and desirable in the existing law. Further, many worthwhile and practical suggestions have been given as to how such changes could and should be instituted in a manner so as to assure full continuance of the fundamental principles of the patent structure.

In this and in subsequent issues the opinions of the readers of *CHEMICAL INDUSTRIES* on the patent situation will be published. Not all of these ideas necessarily are to be taken as expressions of opinion endorsed by the editors of this paper, but from such an open forum much good can be accomplished.

In the final analysis we who are so deeply concerned with the development of a fair and equitable patents policy must be prepared to offer constructive suggestions. Our case before the bar of public opinion will be much stronger if we can agree what should and should not be done. In a word—we must assume a positive rather than a negative position when the subject again comes before Congress. It is very likely that our lawmakers will turn their attention to this matter during the present session.

**Progress In Synthetic Rubber:** At the start of a second year of all-out war the biggest single headache in the war production program is still serious shortages of raw materials, principally certain metals, such as nickel, chromium, manganese, tungsten and vanadium, and, of course, rubber is still number one on any list of highly critical materials.

Our National Rubber Administrator is authority for the statement that we will scrape the bottom of the barrel this year in our effort to keep cars on the road for the vital transportation of war workers and for other necessary purposes. Our greatly expanding war machine is cutting deeply into the stockpile which we accumulated prior to Pearl Harbor.

The necessity still exists for maintaining close control over our largest single source of rubber—the one million tons now on the privately owned automobiles in this country. Nevertheless, there are good reasons for assuming a more optimistic note. The Baruch Report, easily the outstanding development to come out of Washington in 1942, has eliminated the confusion and bewilderment that threatened to nullify entirely our war program and we are now going forward rapidly in the right direction.

The conflicting claims of technologists have been adjudicated fairly. Those that did appear to hold some merit are being given a fair trial. Not all the eggs of production are in one basket. Rather belatedly it must be admitted sufficient critical materials and equipment are being provided to carry out the synthetic rubber program. There must be no interruption in this flow

in the future and Jeffers is hardly the man to permit any further trouble in this direction.

This month will see production start at one of the synthetic plants. From now on and into September we reasonably can expect to see quite a few of the plants scattered about the country reach production stage. By June if no "bugs appear" it is expected that some 50,000 tons of synthetic rubber will be ready but when full consideration is given to a probable demand in 1943 of over one million tons there is no excuse for any undue enthusiasm or reckless release of rubber for non-essential uses. We will be well into 1944 before we can afford the luxury of a deep breath when thinking about rubber, unless, of course, the Japs fold before then and no reasonable person can hope for such action, or at least we most certainly cannot afford to assume that they will. Rather that we be safe than sorry—and possibly licked!

As we start 1943 the government-sponsored synthetic rubber program under way calls for the construction of plants to produce 948,000 tons divided as follows: Buna S, 705,000 tons; Butyl, 132,000 tons; Neoprene, 60,000 tons, and Thiokol, 51,000 tons. Under consideration is the construction of additional Buna S plants to produce an additional 135,000 tons. If acted favorably upon these would bring output up to a projected 1,083,000 tons. Most of the plants under construction are scheduled to come into operation during 1943, but full production will not be realized until 1944. The watchword is still "Conserve rubber."

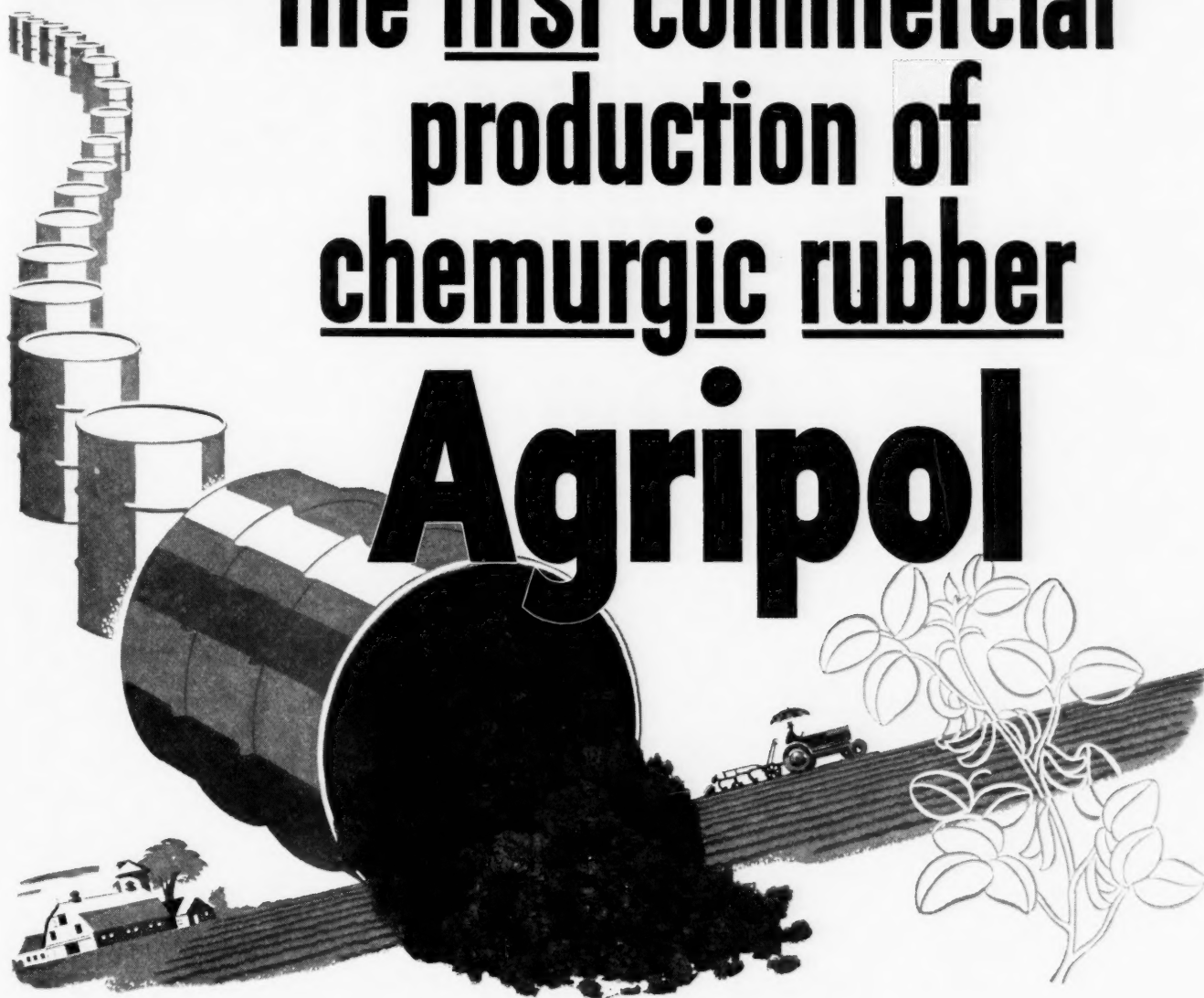
**Gas Warfare:** The recent demonstrations of United States preparedness for possible necessary retaliatory measures if our enemies go so completely berserk as to resort to poison gases were highly encouraging. In a statement issued after the demonstrations were concluded at Edgewood Arsenal on January 2, Major General William N. Porter, Chief of the Chemical Warfare Service, reported to the Nation as follows:

"The best defense against poison gas, if you are not going to initiate its use yourself, is to be ready to retaliate to a greater degree than the enemy can hope to achieve. We are ready."

The high state of preparedness reached by the Chemical Warfare Service is a very commendable example of what can and has been achieved in the way of close cooperation between the military, industry and the scientific brains of the country. Such cooperation has been particularly noticeable in the relationship of the CWS, industry and several of our research agencies both private and public.

The chemical industry, generally speaking, is inclined to be somewhat of a shrinking violet when it comes to publicizing its services, but it is a fact the American chemical industry did show great farsightedness when in 1939 it set up under a request of the Army and Navy Munitions Board a Chemical Advisory Committee with sixteen actively functioning subcommittees. This group provided the necessary information to the army and navy on plant facilities so that when the enemy did strike full details were known on maximum production and possible bottlenecks were prevented. Great credit is due the members of the main committee and subcommittees. By their untiring efforts the American chemical industry has been able to render the country an outstanding service. Unquestionably the preparedness of the chemical field played a noble part in stopping the Axis in 1942 and will contribute in full measure to the final extinction of our enemies.

**ANNOUNCING**  
**the first commercial**  
**production of**  
**chemurgic rubber**  
**Agripol**



**New Synthetic Rubber . . . Joint Product of Science and Agriculture**

NOT RUMOR—not predictions—not hopes—but *actual commercial production of synthetic rubber*—that's RCI's report to America.

Ever since our source of natural rubber was seized it has been predicted that American scientific skill and manufacturing ingenuity would circumvent this crucial obstacle.

Today, those predictions are coming true.

AGRIPOL, a chemurgic synthetic rubber, is a milestone in chemistry's program to make the farm the source of basic raw materials for industry. The raw materials for Agripol come from American farms and, when processed in the RCI manner, result in a highly satisfactory substitute for many rubber applications of a mechanical nature, although not yet recommended for automobile tires.

RCI, because of its quarter century of leadership in producing synthetic resins,


which involve complex chemistry, was among the first to undertake making chemurgic rubber a practical manufacturing accomplishment . . . thus carrying the notable work of the laboratory\* to its ultimate goal.

The speed and success of this endeavor are now evident . . . Agripol is available commercially, offering its contribution to the solution of our Nation's wartime rubber problem.

★ ★ ★

\*RCI gives credit to the Northern Regional Research Laboratories, U. S. Department of Agriculture, Peoria, Illinois for their original research work on the utilization of farm products in industry, and to their technical staff for their cooperation on this development.

**REICHOLD CHEMICALS, INCORPORATED**  
 General Offices and Main Plant, Detroit, Mich.  
 Other Plants: Brooklyn, N. Y.; Elizabeth, N. J.; San Francisco, Calif.; Tuscaloosa, Ala.; Liverpool, England; Sydney, Australia

  
**RCI**  
**CHEMURGIC RUBBER**  
**SYNTHETIC RESINS**  
**INDUSTRIAL PLASTICS**  
**CHEMICAL COLORS**  
**INDUSTRIAL CHEMICALS**

# The Pulse of Opinion—

## A PATENT FORUM

### The Public's Interest in Revision of the Patent System.

By R. B. Fiske

American Cyanamid Company

**M**Y purpose in this communication is to discuss the revision of one of our oldest institutions. We are in this forum not endeavoring to praise it particularly, nor, I hope, to bury it, but to consider how it can be made a more effective instrument of national welfare in our modern economic system.

The patent system is older than the U. S. A. It was born into the English speaking world in 1623 when the British people forced upon King James I the so-called "Statute of Monopolies" in order to curb the abuse of crown monopolies which were stifling trade and limiting commercial opportunities. This statute outlawed grants of monopoly by the King over *existing* trades and professions, but significantly authorized grants of Letters Patent for 14 years or less

"for the sole working or making of any manner of *new* manufactures within this Realm to the true and first inventor and inventors of such manufactures". (Italics ours.)

It is equally significant that the framers of our Constitution, ever mindful of the abuses which their ancestors fled here to escape, incorporated in its *First Article* a grant of power to Congress to

"promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive right to their respective Writings and Discoveries".

The first patent law was enacted on April 10, 1790, and this law, as amended from time to time, has remained substantially unchanged since 1870.

Our complex society and economic

system are vastly different from those of a struggling Republic seeking to create industrial independence by encouraging invention; but the purpose and background out of which our present patent system has evolved are as important today as when it originated. It is fitting that intelligent thought be given to modernizing this institution, as other institutions have been modified and adapted to the needs of a changed society; but in our discussions it is of paramount importance that we retain our contact with the origins of the system and the purposes for which it was instituted. These purposes are aptly stated in the Constitution.

The patent system was not created to enrich inventors, but to benefit the public by stimulating the invention, and promoting the development, of new and better processes and products. To secure these benefits, the public, through its lawmakers, has made a solemn compact that if an inventor will disclose to the public a *new* and *useful* invention (instead of keeping it secret), he will have an opportunity—and it is only an opportunity—to earn the reward of his inventive labors by excluding others from its practice for a *limited period*—after which any member of the public will be free to use it. Thus understood, a patent is not a monopoly carved out of *existing* trades or professions, as the people of England so clearly recognized when they wrote their exception in the Statute of Monopolies, but a limited protection to encourage the contribution, and permit the development, of something *new*.

Under our patent law, patents are issued to the individual inventors. In the early days of the Republic, invention was generally the product of individual genius and effort, with little assistance from others. Invention is still the result of individual genius and effort; but with the advance of scientific knowledge, it often develops from the organized research laboratory where each individual inventor has the benefit of expensive laboratory tools and of co-operation from other scientists of widely diversified training.

It is frequently asserted that patents are not necessary to stimulate invention, because great inventors are so constituted that they would continue to invent regardless of any hope of financial reward. It is also sometimes asserted that the original object of the patent law as a stimulus to the *individual* inventor is no longer applicable in the day of the great research laboratory. There may be some truth in these assertions, but they ignore certain important facts.

Scattered through our great research laboratories are many scientists whose primary interest lies in the pursuit of



knowledge, with relatively little interest in the financial implications of their inventions. Nevertheless, they have to earn a living. The research laboratory provides a subsidy which affords these scientists the maximum scope for their inventive genius, by enabling them to devote all their attention to creative work, instead of having to rely for their livelihood upon their own individual inventive effort or supplemental work of a less congenial nature.

Through the organized research laboratory their work can be appraised and correlated with that of others; and if the invention is of practical potentiality, the patient money to bring its benefits to the public can be provided.

Those who argue that patents are not needed to stimulate invention overlook the equal importance of stimulating *development* and the serious results which would flow from removing the stimulus which the patent protection now provides. Not only will investment in the development of the *individual* inventor's idea be discouraged. If the organizations which support these laboratories with vast expenditures can have no assurance that the law will continue to protect them by excluding others from the practice of their inventions for "limited times", the incentive to support the research and to be the first to bring the public a new and useful invention will be seriously impaired.

### Much Talk Recently

In recent months we have heard much of the necessity of revising the patent law. In this discussion, let us approach the advisability of amending the patent law from the standpoint of the public by whom, and for whose benefit, it was created.

Approaching it from that standpoint, we do not find justification for the three bills which are sponsored by Thurman Arnold and Senators Bone, La Follette and O'Mahoney, and to which we refer because they have gained wide public attention—even though they are too complicated and ambiguous to discuss here in detail.

These bills were presented to the public through widely publicized hearings before the Senate Patent Committee in the spring and summer of this year. Six thousand pages of testimony and exhibits, drawn largely from Department of Justice files, were presented at these hearings—much of it, like the allegations against the dye industry, having no relation to patents whatsoever. Little opportunity for rebuttal was presented to parties accused in these hearings; and the Committee adjourned without reporting out a bill and without affording industry in general a promised opportunity to reply to its sweeping accusations, although its Chairman has promised to continue hearing and to afford

such opportunity after the new Congress convenes.

*Senate Bill 2303* was introduced with the ostensible purpose of facilitating the promotion of the war by making all patented products and processes available to the Government. There can be no legitimate objection to the announced purpose of this Bill; but it has now been clearly achieved by Public Law 768, passed by this Congress, which removes any previous doubt that the famous Law of 1910, as amended in 1918, permits the Government to use any invention directly or through contractors or subcontractors.

*Senate Bill 2491* is primarily a compulsory licensing statute, which would permit the Commissioner of Patents to require the grant of licenses "on such reasonable terms and conditions as he may prescribe", when he finds that for three years after a patent's issuance the owner of the patent has failed, without "reasonable justification", to make, use and vend the invention, or that, having so failed, the patentee has refused to grant licenses on the payment of "reasonable and just compensation", *provided* in each case that such failure or refusal, in the Commissioner's opinion, has resulted or is likely to result in a violation of the Anti-Trust Laws, *or is otherwise detrimental to the public interest*.

This bill also provides that no patent license may contain restrictions on:

- (a) the quantity of production;
- (b) the selling price of any article;
- (c) the purpose or manner of use of any patented process or article; or
- (d) the territory of operations.

Ninety days would be given in which to reform existing licenses. The bill further prohibits the grant of licenses on any condition which would tend substantially to lessen competition or create a monopoly, "unless such restriction is necessary to promote the progress of science or the useful arts." A violation of these prohibitions would justify a forfeiture of the patent.

There is an insidious plausibility in the arguments for a compulsory licensing system; and the degree of public attention which the subject has received justifies some digression for consideration of the arguments in its favor.

Proponents of compulsory licensing base their arguments on the ground of public interest. They recall that the public grants patents to foster new ideas which will continue to improve our standards of living, and argue therefrom that the right to exclude should be maintained only where the return to society is commensurate. To this school of thought there is something repulsive in the patentee's right to exclude others when he is not himself bringing the practical benefit of his invention to the public. Thus they

would give the patent owner a "reasonable" opportunity to produce and distribute the fruits of his invention. But if he fails to take advantage of this opportunity, they would require him to let others produce on royalty terms which would bring him a "reasonable" reward—in order to get the invention in common use.

The syllogism is complete and the conclusion inescapable—if we accept the premises and concede the practicability. There seems to be nothing shocking to members of this school in consigning the fate of the patentee's rights to an administrative official's views of "reasonableness"—especially if we go through the motions of providing court review.

At the risk of overemphasis, however, let us recall that the Patent Law was passed under a Constitutional grant of power

"to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the *exclusive* right to their respective Writings and Discoveries." (Italics author's.)

It is vital to an understanding of this complex subject to appreciate that the Congressional *promise of a patent*, carrying the right to exclude all others for a limited time, is what the founders of our Country relied on to stimulate invention and "promote the Progress of Science and the useful Arts".

### What Will Happen?

Now what will happen to the stimulation if the nature of the promise is diluted? If we promise *not* a right to exclude for seventeen years, but a right to exclude for such part of that time as the patent owner can prove (at his own expense) is "reasonable", will the public continue to benefit from new inventions and commercialization of old ones? As one consequence of such a limitation, it seems reasonable to assume that inventors will not be stimulated to disclose their inventions, but rather will endeavor to profit from them by keeping them as secret as possible.

And what of the patent owner who must seek new capital to perfect his process and to build a plant to put a product into a competitive and skeptical market? Few indeed are the inventions which can be marketed in their bare patented form. Painstaking and protracted development is necessary to refine the details of the invention itself and often far-distant fields must be carefully explored (with perhaps additional invention) in order to find and adapt the materials and equipment which will make the manufacture commercially practicable.

There must be protection for the effort and capital which do these things or they

will not get done—at least with private capital; and we still live in a capitalistic country. It must not be the kind of protection which rests in the discretion of any man, however wise and impartial he may be. Shorten the 17 year period if it is too long; but within the patent life do not force a patentee to license *anyone*, however ruthless their competition or dubious their ethics, because he is not producing fast enough or cheaply enough to meet the intangible test of “reasonableness”.

There appears to be some public belief that patents are deliberately and systematically suppressed by large corporations. Proponents of compulsory licensing also assert that patent owners often control patents on several competing processes and operate only one. They argue that the public welfare demands that those which are not being operated should be available to anyone who wishes to commercialize them.

It is true that industrial organizations frequently control patents or patent applications on more than one way to do a job. There is nothing immoral in this. It is almost inevitable that in seeking to perfect a new invention the development research will uncover several ways to make it function. One will almost always prove the best under *existing* conditions of cost, materials and public demand—but others may have more promise under expected changes in conditions. Awaiting such changes is not suppression. It would be a calamity if someone who is not an expert in the problems of commercializing the product should be permitted to decide at what point it is no longer “reasonable” to exclude others from practicing the inventions which represent so much of the patentee’s money, effort and aspirations.

Senate Bill 2730 was urged upon the Committee by Mr. Arnold in one of its last hearings. It would amend the Sherman Act to provide criminal penalties and forfeiture of the patent for “any use of a patent, including any unreasonable failure or refusal to grant licenses thereunder, which has the effect of unreasonably limiting the supply of an article moving in interstate commerce”, unless all of the acts had been disclosed in advance in writing to the Attorney General.

This bill would also require service upon the Government of the pleadings in all patent infringement suits instituted in United States Courts, and would permit the Government to intervene for the purpose of challenging the scope or validity of the patent.

The provisions of these bills will demonstrate how Mr. Arnold’s group has viewed a patent right as an inherent challenge to the Anti-Trust Laws, which must be removed, not only by applying the Anti-Trust Laws to the *exercise* of that right (as in the case of other rights) but by emasculating the right itself. Thus

we would have the paradox of promising an inventor a right to exclude others if he will contribute something new and useful to society and after he has made his contribution reminding him that his right to exclude is only a “reasonable” right to exclude, which he can exercise only if he can prove its validity in court over the opposition of the Government which granted it to him.

Mr. Arnold will argue that thus is the progress of science and useful arts promoted, as he will assert that requiring a patent owner to share his rights will remove the shackles on production and distribution. This seems in the philosophic pattern of our latter-day liberals that the public interest is served by the redistribution of *existing* wealth or property. Does it accord with the fundamental concept of our society that our greatness has come and will continue through the creation of *new* wealth?

### For Public’s Good

We have seen that the patent law seeks to bring new and useful inventions to the public. This will not be accomplished unless the law stimulates not only the invention, but its development to the point where the public can get better and cheaper goods. Without assurance of protection from oppressive competition in the development stage the risk capital for such development will not come forward, whether the invention comes from the individual genius or the research laboratory.

Mr. Arnold’s group ignores these facts in its approach to patent law revision; but they have been pointed out by others with perhaps a more practical background of experience in benefiting the public through the distribution of goods. Mr. Arnold’s group would assertedly benefit the public by *weakening* the patent system. Others would do so by *strengthening* it, that it might better perform the purpose for which it was founded.

Many suggestions for revising the patent system have come from different sources; and it is impossible to comment on all of them or even to classify them. From them we have chosen for discussion several which would appear to be particularly effective in promoting the purposes for which the system was incorporated in our institutions.

As a preface it may be conceded that recent agitation for reform has its foundation in a public distrust of patents. Perhaps we can find the reason in the indiscriminate grant of patents embodying little or no real invention. In issuing a patent the public excludes itself from the field of the patented art, in consideration of the contribution of a “new and useful invention” to the sum of public knowledge; but in many cases it is not getting such a contribution. Let us see

what might be accomplished by endeavoring to assure the public that this right to exclude will be granted and maintained only for those who in fact contribute a new and useful invention in return.

In April 1933 President Roosevelt appointed the Science Advisory Board, which established a “Committee on the Relation of the Patent System to the Stimulation of New Industries”, under the Chairmanship of Dr. Vannevar Bush, then Vice President and Dean of Engineering, Massachusetts Institute of Technology. This Committee also included W. H. Carrier, Chairman of the Board, Carrier Engineering Corporation, D. M. Compton, Industrial Consultant, of Chicago, Frank B. Jewett, Vice President of American Telephone & Telegraph Company and President of Bell Telephone Laboratories, H. A. Poillon, President of the Research Corporation, and Maurice Holland, Director of the Division of Engineering and Industrial Research of the National Research Council.

The Committee was requested by the Secretary of Commerce to submit “a broad policy and program for the stimulation of new industries in this country”; and in response to this request it submitted a report in April, 1935, suggesting certain changes in the Patent Law. The caliber of its membership, the tenor of its report and the nature of its suggestions indicate that the public interest was paramount in the minds of its members. Most of the suggestions which we would propose parallel recommendations contained in its report.

### Suggested Changes

#### 1. Opposition Procedure

We have placed first on our list a suggestion that we borrow some part of the opposition procedure embodied in the Patent Systems of other countries, with whatever changes are necessary to adapt it to our economic structure. Before the war virtually all the great industrial nations abroad had such a procedure. Without it, the public is in the peculiar position of granting patents excluding itself, without an adequate opportunity to be heard in the proceeding by which the patent is issued.

Technically, the Patent Office Examiners represent the public; and in the main they are as loyal, hard working and efficient a group as any in our Government. Over the past ten years, however, an average of 62,000 patent applications have been filed annually in our Patent Office, which has had an examining personnel in all categories averaging approximately 650 person. Obviously the Examiners cannot spade up all the prior art. The applicant will not supply it, but will plead his own special interest, often through shrewd and resourceful counsel and after careful preparation.

It is little wonder that approximately two-thirds of the applications filed under these conditions issue into patents, many with complicated and restricted claims of doubtful novelty or utility.

### "Presumption of Validity"

Nor is it to be wondered at that Courts have little reverence for the "presumption of validity" when in cases which come before them, defendants' counsel are so often able to establish sound reasons for the invalidation of the patent. This judicial irreverence is bound to be translated into public distrust, opening the door for suggestions which would weaken or destroy the patent system.

The Science Advisory Board has proposed that before patents are issued, the claims be published and the public afforded an opportunity to present evidence of prior art which would afford good cause for refusing the patent. This evidence would be treated by the Patent Office in its regular *ex parte* proceeding. Our suggestion would go further, as we would afford anyone an opportunity to present evidence of prior art, public use or other reasons for denying the patent, to be answered by the patent applicant and to be ruled upon by the Patent Office.

If this procedure were followed, the Patent Office would have the benefit of painstaking searches made by specialists in their fields over many years, more comprehensive than any studies which its own over-burdened Examiners could possibly make. The Patent Office would necessarily exact a higher standard of invention as the price of a patent grant and the public would have a hearing at the source. A patent which issued after the public had been so notified and afforded an opportunity to appear in opposition would obviously command a higher "presumption of validity" from the Courts than those which now issue without the public being heard; and protracted, uncertain and expensive litigation to establish the validity of issued patents would seldom be necessary.

### 2. Dating the Patent Right from the Date of Filing the Application

The second suggestion would limit the life of a patent to twenty years from the date of filing the application. One of the justified criticisms of our patent system is addressed to the delays in patent proceedings which frequently have the practical effect of extending the patent monopoly far beyond the statutory term of seventeen years. Clever attorneys have been able to keep an application in the Patent Office for years before its issuance, and this practice has met such condemnation that in some cases courts have invalidated the patents as a result. If the patent rights dated from the date of filing the application, as in England,

there would be no incentive for such delay.

### 3. Taxation for Maintenance of Patents

The third suggestion advocates a system of taxation for the maintenance of patents, as in the case of most important foreign countries. This is one of the recommendations of the Science Advisory Board. The patent system should support the patentee's right to exclude others only where he has earned such right by contributing a new and useful invention to the public. At the present time, innumerable patents of slight intrinsic value remain upon the records; and much prospective research and development which would benefit the public is discouraged by their mere existence, however doubtful their validity or utility. If the owners of these patents were required to pay a graduated tax for their maintenance, small in the early years and gradually increasing, the initial costs in the Patent Office might be reduced, and many useless and obstructive patents would be allowed to lapse, opening to the public fields which it is now reluctant to enter in the face of possible burdensome and uncertain litigation.

### 4. Creation of a Single Court of Patent Appeals

The fourth suggestion proposes the creation of a single Court of Patent Appeals in place of the present system of appeals to the United States Circuit Courts of Appeal. This reform was recommended by Commissioner of Patents Coe and approved by the Temporary National Economic Committee and the Science Advisory Board. With the creation of such a Court, dedicated to the full time administration of the patent law and staffed by Judges carefully selected for the purpose, patent lawyers would no longer comb the country for a court of particular sympathies or prejudices nor start harassing litigation in several Districts for the purpose of forcing settle-

ments. The Judges, detached from other issues, would become students of patents and the patent law; and gradually the country would be provided with a comprehensive, cohesive guide to patent problems, in the place of the present chaos of conflicting and irreconcilable decisions.

### 5. Technical Advisors to Courts

The last suggestion, which is similar in principle to a recommendation of the Science Advisory Board, would permit the Federal District Courts to call upon technical advisors for aid in determining complicated technical issues of fact. At present, District Court Judges must rely upon experts employed by the litigants and the self-serving testimony which, of necessity, they present. By this suggestion a disinterested advisor might be consulted by the Court and the cost charged as part of the costs of the suit.

\* \* \* \*

The President has appointed a National Patent Planning Commission to receive and weigh suggestions and to recommend such changes in the patent law as it believes in the national interest. This commission falls heir to the work of the Special Committee of the Science Advisory Board, in a larger capacity, and its personnel is equally distinguished. Its Chairman is Mr. Kettering, and his associates are Owen D. Young, Edward F. McGrady, Chester D. Davis, and F. B. Gaines. The Commission is charged by the President with determining whether the patent system is providing the maximum service in encouraging inventions and whether its efficacy for that purpose can be increased; and it solicits advice and promises impartial consideration.

It is earnestly to be hoped that in formulating its recommendations for reform this commission will be guided by the principles upon which the patent system was established, and avoid endorsement of suggestions which would weaken or destroy those principles.

## Givaudan-Delawanna President Outlines His Views

By Dr. Eric C. Kunz

THE entire patent question has been reopened by CHEMICAL INDUSTRIES, in its issue of November, 1942. In fact, this publication offers an invitation to participate in an open forum, to collect ideas and thoughts which may be instrumental and constructive in obtaining the best benefits from the patent system for the largest number of people in the United States. That, I believe, is the democratic way of tackling and settling the question.

Lest you have forgotten, the patent system supposedly is based on Section 8 of our Constitution, paragraph 8 of which defines the powers of Congress as including:

"To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries."

Do we really follow the principles, the thoughts and the ideas laid down in the Constitution? Or perhaps must the basic thought, as expressed in the Constitution, now be modernized, in order to adapt it to modern conceptions of democratic principles, in setting up and regulating our patent system?

It seems to us that the language used in the Constitution, extending a certain privilege to authors and inventors, is

(Continued on page 78)

# Chemical Chronology, 1942



## January

War Production Board created with Donald Nelson as chairman—All supplies of tin subject to specific allocation by Director of Priorities—Dr. Ross A. Gortner to receive Osborne Medal presented by American Association of Cereal Chemists—Treasury Department in effort to smash completely a long-range German scheme to control important part of pharmaceutical market suspended Dr. Julius Weltzien, president, and seven other executives of the Schering Corp.—National Wholesale Druggists Association charged in Federal grand jury indictment with conspiring to violate Sherman Act—Dr. Arnold L. Lippert designated Presiding Officer of newly formed Dyestuff Manufacturers Industry Advisory Committee—Army gets Chemical Warfare Service's St. Louis Plant No. 1 from Monsanto—Innis, Speiden celebrates Silver Jubilee—Mathieson Alkali completes negotiations for construction of \$22,500,000 magnesium plant at Lake Charles, La.—J. Oostermeyer elected president, Shell Chemical—Dr. Willard H. Dow, president, Dow Chemical, elected member of the corporation of M. I. T. for five years—The John Fritz Medal, highest award in engineering profession, is presented to Everett Lee DeGolyer for pioneering in geophysical exploration in search of oil fields—Chemicals and Allied Products Branch, WPB assures necessary supply of chlorine for water purification and sewage treatment—Dr. C. F. Rassweiler appointed vice-president of Johns-Manville—United Carbon opens new half-million dollar building at Charleston, W. Va.—The Textile Color Card Association appoints advisory committee on dyestuffs—Alkali unit of Materials Division, OPM, set up in Washington with John E. Russell, formerly with Diamond Alkali, as head—Harshaw and Stauffer Chemical set up joint enterprise in Lewiston, N. Y. under the name New York-Ohio Chemical Corp.—Perkin Medal presented to Dr. Martin H. Ittner by American Section, Society of Chemical Industry—War Department local contracting and procurement officers authorized to award all contracts of less than \$1,000,000 without sending to Washington for final approval—All chlorine produced in U. S. subject to direct allocation after Feb. 1—Memorandum of Minister of Supply, British Chemical Control Board, reports satisfactory experience with women workers in chemical industry—Thomas Midgley Jr., vice-president of Ethyl Gasoline Corp. awarded Willard Gibbs Medal Chicago Section of A. C. S.—V. H. Fischer, Dodge & Olcott, elected president, Essential Oil Association of U. S. A.—National Labor Board decision upholds professional status of chemists—Defense Plant Corporation authorizes government expenditure of \$400,000,000 to increase annual capacity of synthetic rubber to 400,000 tons—Deaths: William P. Fitzgerald, vice-president, J. T. Baker Chemical; Otto S. King, Ohio Chemical and Manufacturing vice-president and director; Clifford D. Holley, head of Sherwin-Williams Research Laboratories.



## February

Toluene distribution subject to specific allocation by director of priorities after February 1—Government begins program to produce over 600,000 tons of manganese concentrates a year—Continental Oil, Air Reduction, and U. S. Industrial Alcohol form Petroleum Chemicals, Inc. to develop production of synthetic organic chemicals from petroleum—Dr. Robert R. Williams, chemical director of Bell Telephone Laboratories, and Dr. Roger J. Williams, University of Texas, receive the Chandler Medal of Columbia University for their work on thiamin and pantothenic acid—Dr. Ernest W. Reid appointed Chief, Chemicals Branch, War Production Board—Dr. Hugh S. Taylor, chairman of Department of Chemistry, Princeton,

awarded highest honor of the Chemical Society of London, the Longstaff Medal—Emmet C. Thompson appointed general manager of Grasselli Chemicals Department of du Pont—Gerald E. Donovan elected vice-president and director of Schering Corp.—J. Frederick G. Breen, formerly with Smith, Kline, and French, Inc., made Chief of Chemical Section of New York Regional Office, O. P. A.—George H. Richards becomes general manager of Celanese Celluloid Corp.—Philip D. Reed, chairman of board of directors, General Electric Co., heads the Industrial Branches in Division of Industry of War Production Board—WPB acquires possession of all idle aluminum inventories in hands of fabricators—Department of Agriculture develops 10,000 acres of sorghum as new source of industrial alcohol and sugar—Ford Motor and Union Carbide to produce magnesium, each company using a new process—WPB announces new program boosting future annual production of aluminum to 2,100 million lbs. and magnesium to 725 million lbs.—Board of Economic Welfare issues more detailed licensing controls for medical and pharmaceutical products to prevent excessive export drains—Board of Directors of Chemist Advisory Council votes to discontinue organization's activities—Soap producers asked to modify production methods to obtain maximum amount of glycerine—Department of Commerce surveys container manufacture and use—T. E. Schneider leaves International Minerals & Chemical Corp. to form Tesco Chemical—Plaskon Company opens new research and engineering building in Toledo—Standard Oil Co. of Indiana contracts to build toluene plant in Midwest capable of producing amount equal to entire nation's annual output during first World War—Deaths: Edward Ostrom, Hooker Electrochemical; Alan G. Wikoff, Union Carbide and Carbon; Carl Pfanstiehl, Pfanstiehl Chemical, conducted research for government in both World Wars.



## March

War Production Board releases official Plan Book for war production quotas—Senate Finance Committee asked to revise federal tax laws to permit setting up of reserves of severance pay funds for workers discharged at end of war production activities—WPB places entire wood pulp industry under allocation system, effective May 1—Houlder Hudgins named director of Purchase Division, WPB—Leo T. Crowley, Chairman, Federal Deposit Insurance Corp., appointed Alien Property Custodian—Secretary of Treasury reports Robert E. Wilson (Pan-American), George Mofett (Corn Products), and A. E. Marshall (Rumford) managing directors of General Aniline—100,000,000 gallons of alcohol averaging 140 proof offered for production of industrial alcohol in smokeless powder manufacture—Conservation and Substitution Branch of Industrial Conservation Bureau, WPB, issues first of periodic series of provisional reports on relative scarcity of certain materials—New York Chapter of Illinois Institute of Technology holds first annual dinner at Chemists' Club—Chemurgy in War is theme of eighth annual and largest Chemurgic Council of Agriculture—Borden Co. prize awarded to Dr. George E. Holm, biochemist of Dept. of Agriculture for outstanding research in the chemistry of milk—Secretary of Labor Frances Perkins establishes minimum wages in chemical and related products industry—National Association of Retail Druggists, New Jersey Pharmaceutical Association, 13 local and county pharmaceutical associations in New Jersey indicted for violation of Sherman Anti-Trust Act—Arthur V. Newhall appointed Coordinator for Rubber by Nelson—Osborne Bezanon elected a vice-president of Monsanto—L. V. Steck named vice-president in charge of marketing of Shell Chemical—Dr. Paul D. Peterson appointed Director of Agricultural Research for Freeport Sulphur—Mathieson Alkali Works, Inc.

completes contract with Defense Plant Corporation for immediate construction of plant to produce ammonia synthetically—Reconstruction Finance Corporation announces "loss at sea" of 500,000 ounces of quinine, which coupled with the loss of Netherlands Indies creates serious emergency situation in quinine—Louis A. Hoffman elected president and general manager of Hilton-Davis Chemical—Pacific Lumber Company announces combination of redwood bark fiber with sheep's wool to form Palco Fibre A—Drug, Chemical and Allied Trades Section of N. Y. Board of Trade holds 17th annual banquet with record attendance of 1,900—Deaths: A. Brooking Davis, president of Hilton-Davis Chemical; Edward J. Dunne, prominent in steel drum and wooden barrel industry; Dr. M. R. Dinkelspiel, associate editor of Merck Manual of Therapeutics and Materia Medica.



## April

Senate Patents Committee subpoenas records of Department of Justice and leading industrial firms preliminary to studying effect of patent controls on war production—About 36 chemicals or related materials placed under allocation by WPB for export to Latin-America and Canada in second quarter of year—Leo T. Crowley, Alien Property Custodian, takes control of holdings of foreign nationals in Magnesium Development Corp.; I. G. Farbenindustrie formerly owned stock in this company—Pennsylvania Salt Manufacturing announces contract with government for construction and operation of new plant for manufacturing materials used in war goods production—National Bureau of Standards announces recommendation limiting variety of colors of oil paints, water-mixed paints, enamels, varnishes, and containers for these products—Dr. Paul Dyer Merica, International Nickel vice-president, receives Franklin Institute Medal—R. G. Phelps, who supervised construction of plants in first World War for du Pont and Aetna Chemical, is designated price executive of the chemical section of OPA.—Registration of more than 2,300 chemists is reported at the 103rd meeting of American Chemical Society in Memphis, Tenn.—American Management Association discusses changes wrought in packaging field by war in its 12th Annual Conference and Exposition of Packaging, Packing and Shipping—Dr. L. W. Bass, formerly with Mellon Institute, appointed director of New England Industrial Research Foundation, Inc.—Office of Price Administration issues sweeping order putting ceiling on prices of chemicals, oils, paints, and all other commodities; blanket order applies to prices at all levels for manufacturer, wholesaler, and retailer—Armour Research Foundation inaugurates National Registry of Rare Chemicals which will be clearing house for information about rare chemicals—Navy Department establishes basic research project on specialized aviation instruments at Mellon Institute of Industrial Research—Dr. Charles N. Frey, director of research, Fleischmann Laboratory of Standard Brands, Inc., elected chairman of N. Y. Section of A. C. S.—Production of smokeless powder in U. S. less than four months after our entrance into the war surpasses peak output of first World War—Monsanto Chemical opens Trenton, Mich., plant for production of industrial chemicals derived from phosphorous—Charles J. O'Connor elected president of Reichhold Chemicals, Inc.—Ample stocks of sulfur available—Shipments of calcium chloride increase—Great demand for all vitamin chemicals—Anticipated shortage of insecticides for this year—President Roosevelt and Prime Minister of Canada agree to increase production of oil-bearing crops in United States and of oats, barley, and flaxseed in Canada—Anticipate possible shortage of nicotine for conversion into nicotinic acid—Deaths: Dr. Carl O. Johns, consultant chemist formerly with Standard Oil Development Co.; Dr. Geza Szasz, Actina Corp. and Electro-Copyist Corp.; Rene Weil, president of the metals, minerals, and chemicals firm bearing his name.

January, '43: LII, 1



## May

War Production Board announces that 200,000,000 gallons of butadiene will be allotted for rubber manufacture, practically all to be produced from grain—Rubber Reserve Company and Defense Plan Corporation contract with principal oil, chemical and rubber manufacturing companies to begin rubber production facilities within next 18 months which will furnish more than 700,000 tons annually—Arsenic placed under allocation control—WPB assumes control of imports of all known commercial oils from which quinine is derived—Highlight of thirty-fourth semi-annual meeting of American Institute of Chemical Engineers is closed door discussion of war problems—E. Clifford Williams, vice-president and director of research of General Mills (now with General Aniline and Film), awarded William H. Walker Medal for his paper on manufacture of synthetic glycerin—Dr. Arno C. Fieldner, head of technological branch of U. S. Bureau of Mines, awarded Melchett Medal for outstanding work in development of process for making gasoline from coal—Dr. Gustav Egloff, director of research, Universal Oil Products and 1940 A. I. C. Medallist, elected president of American Institute of Chemists—Last remaining patents of I. G. taken over by Leo T. Crowley, Alien Property Custodian—WPB limits use of high lauric acid oils in food products during summer months because of tendency to grow rancid in hot weather—B. F. Goodrich Co. providing financial aid to Cornell University for long-term solution to rubber problem through possible botanical sources of rubber in Western Hemisphere—Eight corporations and 20 of their officers indicted on charges of engaging in world-wide conspiracy to suppress competition and monopolize manufacture and sale of dyestuffs; American firms are du Pont, Allied Chemical & Dye, American Cyanamid, General Aniline and Film, and General Dyestuff; Swiss group includes Ciba Co., Sandoz Chemical Works, and Geigy Co.—Dr. John L. Oncley, associate in physical chemistry at Harvard Medical School awarded \$1,000 American Chemical Society Prize in Pure Chemistry for outstanding research in protein chemistry—Over 2,400 attend National Association of Purchasing Agents' 27th annual international convention and hear Donald Nelson and Leon Henderson outline their part in war program—Newly-formed Co-operative Research Council, sponsored by American Petroleum Institute and Society of Automotive Engineers, is seeking best combinations of fuels, lubricants, and equipment for internal-combustion engines—Wheatfield Chemical Division, Durez Plastics and Chemicals, Inc. contracts for construction of new chemical plant in New York State—Alphonse Pechukas named Acting Director of Research, Columbia Chemical Division, Pittsburgh Plate Glass—WPB, War, and Navy Departments establish program bringing all war time construction under more rigid control—Several government agencies empowered by President to import war-essential materials duty-free—WPB to control imports of all civilian commodities beginning July 1—Soda ash consumption high attributable in part to increased use of glass containers—Calcium chloride consumption also increasing—Consumption of chemicals in war program expected to take up slack caused by reduced demands from non-essential production—Alcoholic beverage industry ready to employ its total facilities for producing alcohol from grain for manufacture of either gunpowder or butadiene—Death: Arthur A. Backus, vice-president in charge of production, U. S. Industrial Chemicals, Inc.



## June

WPB realigned to join more closely economic and military strategies and increase effectiveness of Board's policies and programs governing flow of materials—Manufacturers urged to find substitutes for certain tight chemicals—mannitol, sorbitol, and their derivatives; wetting agents, including emulsifiers, such as sulfonated coconut oil and lauryl alcohol—Laboratory equipment is restricted—Con-

tainer situation continues to become more drastic; manufacture or use of tinplate or terneplate cans for many chemicals, varnishes, paints, various special products is now prohibited—Growing shortages of metal drums and containers, and gas cylinders results in further restrictions on export of these container types—Francis P. Garvan Gold Medal honoring women in chemistry awarded to Dr. Florence B. Seibert, associate professor of bio-chemistry, Henry Phipps Institute, University of Pennsylvania, for her isolation of active substance in tuberculin—John W. Boyer, formerly with chemicals section of OPA, now acting chief of acids, salts, and gases unit of Inorganic Section of Chemical Branch, WPB—Government and Humble Oil & Refining Co. investing \$43,000,000 in construction of two plants for synthetic rubber program—Federal grand jury indicts six explosives manufacturers and ten of their officials for conspiring to fix prices in violation of Sherman Anti-Trust Act—Manufacturing Chemists Association holds seventieth annual meeting and elects H. L. Derby, American Cyanamid & Chemical Corp., president—Restrict sales of quinine and other anti-malarial agents—Supply of raw materials chief problem facing WPB—National Fertilizer Association holds 18th annual convention and emphasizes importance of preserving our soils and their fertility—Dr. Nelson Allen, research supervisor, du Pont Rayon Division, Buffalo, elected general chairman of 104th meeting of American Chemical Society to be held in September—Twenty-one acid-producing chemical companies indicted for alleged illegal price-fixing and control of production and distribution in violation of anti-trust laws—Largest number of manufacturers and their representatives ever to gather for all sessions at a convention of its kind met at 28th semi-annual meeting of National Association of Insecticide and Disinfectant Manufacturers, Inc. in Chicago to discuss effect of war program on the industry—Production, technical and sales operation of Warner Chemical Co., California Chemical Co., Magnesol Co., and National Kellastone Co. divisions of parent company are integrated into Westvaco Chlorine Products Corp.—Dr. Paul W. Bachman appointed Assistant Research Director, Commercial Solvents Corp.—S. B. Penick, Jr. elected president of S. B. Penick & Co.—Dr. Oliver Bowles, internationally known authority on non-metallic minerals, made chief of Non-metal Economics Division of Bureau of Mines—Department of Commerce reports U. S. merchandise exports, including lend-lease shipments, exceeded merchandise imports by 1¼ billion dollars in first four months of year—All available ammonia going into war industries—Government takes huge quantities of benzol for future use in synthetic rubber manufacture; large quantities also going into manufacture of aviation gasoline—First slackening of demand in fats and oils noted—Synthetic resins and plastics, drying oils and solvents, requisite for war manufacture being saved by substitution of soybean and casein proteins in industrial processes.



## July

WPB begins non-stop nationwide campaign for salvage of metal scrap, tin cans, fats, rubber, etc.—OPA assumes rationing authority over all commodities in Puerto Rico and Virgin Islands, exempting sales to armed services, other government agencies—Bureau of Mines' metallurgists to establish \$500,000 electro-development laboratory to study recovery and processing of strategic minerals—Alien Property Custodian assumes control over General Dyestuff Corporation, Byk, Inc., Siemens, Inc., and Ajax Transportation Company—J. B. Davis loaned by Chemicals Branch of WPB to Board of Economic Warfare for special assignment; E. H. Bucy succeeds to the office of Chief of Protective Coatings Section—Charles C. Concannon, head of all chemical activities of Bureau of Foreign and Domestic Commerce in U. S. Commerce Department for many years, made Chief of the Durable Goods Branch of Materials Unit—Dr. Ernest W. Reid, Chief of Chemicals Branch of WPB, appoints

committee of outstanding American chemists and chemical engineers to advise the WPB on technical processes—Colonel Louis Johnson, formerly Assistant Secretary of War, appointed president of General Dyestuff by Alien Property Custodian—Chemicals Transportation Advisory Committee formed to assist Office of Defense Transportation—Anticipate recovery of approximately one million pounds of essential chemicals through salvaging wasted spray paints, due to over-spray—WPB classifies end uses of Canadian companies' products on same basis as American concerns—Department of Agriculture announces short, economical process of making butylene glycol through fermentation of grain, corn and wheat—Dr. Evan C. Williams appointed chemical director and vice-president of General Aniline & Film—John W. Livingston, vice-president of Monsanto, joins Rubber Reserve Co. as consulting engineer—Agfa Ansco celebrates centennial anniversary and announces a color film which amateur and professional can develop in darkroom—Dr. Gustav Egloff, research director of Universal Oil Products Co., testifying at House Mines and Mining Committee's gasoline-from-coal hearing, praises United States for manufacturing gasoline at about one-third the per-gallon cost in England—Twenty-six manufacturers of insecticides and fungicides and Agricultural Insecticide & Fungicide Association of New York ordered by Federal Trade Commission to cease price fixing and other practices in restraint of trade—To handle expanded research program Hercules Powder employs women chemists and institutes night research shift at its central Experiment Station laboratories—Du Pont announces an all-time high in its production of materials required for war emergency—Wheelco Instrument Co. establishes school where plant and office employees gain greater knowledge of instruments, their construction and use by America's war industries—F. C. Todd and A. W. Gauger of Pennsylvania State College receive Charles B. Dudley Medal at A. S. T. M. Annual Meeting for their extensive studies on measurement of water vapor and gases—Office of Alien Property Custodian approves sale of Rare Chemicals, Inc. seized May 26 to National Oil Products—Dr. Lucius W. Elder appointed director of physical chemistry, Central Research Laboratories, General Foods Corp.—Sulfuric acid is purchased in huge quantities—To maintain output, paint manufacturers develop alternates for materials that are short—American Ambassador to Brazil announces agreement under which United States will buy major quantities of six Brazilian products, cotton linters and hull fibers, castor beans and oil, babassu oil and kernels, burlap, ipecac, and rotenone—Deaths: Dr. Henry Granger Knight, Chief of Bureau of Agricultural Chemistry and Engineering in U. S. Department of Agriculture; Professor Richard Willstaetter, 1915 Nobel Chemistry Prize winner for his research in chlorophyll and other vegetal colorants.



## August

President Roosevelt appoints three man fact-finding committee to investigate rubber situation, Bernard M. Baruch, Dr. James B. Conant, President of Harvard, and Dr. Karl T. Compton, M. I. T. President, and vetoes bill designed to set up separate agency to develop ways and means of producing synthetic rubber from alcohol manufactured from agricultural and forest products—War Manpower Commission to assist business establishments in difficult problem of locating chemists, engineers, metallurgists, etc., by canvassing plant requirements and using Roster of Scientific and Professional Personnel—All distributors of chemicals, drugs, etc. must register with OPA—National Association of Manufacturers selects committee headed by S. Bayard Colgate, chairman, Colgate-Palmolive-Peet, to prepare practical program to guide its member companies in meeting post-war conditions—WPB Chemicals Branch announces appointment of Richard H. Grimm, formerly president, Industrial Alcohol Institute, as Chief of Industrial Alcohols Unit—WPB to control distribution of soluble nitrocellulose—

Same agency announces program for reclaiming war-essential solvents and oils, anticipated recovery to exceed one billion pounds—All priority ratings will be issued centrally through the War Production Board thus terminating authority of Army and Navy procurement officers to assign priority ratings in the field—Canadian division established to handle Canada's priorities problems in Office of Industry Operations, WPB, headquarters located with Department of Munitions and Supply, Ottawa—Complete allocation of petroleum solvents other than benzol and toluol ordered—Revamping of Chemicals Branch of WPB completed by Dr. E. W. Reid, Chief of Branch; Aromatics and Intermediates Section absorbs Plasticizers and Glycols unit and will be headed by Hugh D. Hughes, formerly of Carbide and Carbon; new Transportation and Packaging Section created with Donald C. Knapp as chief; reorganization also creates new Plastics and Synthetic Rubber Section with Frank Carman, formerly chief of rubber chemistry with Armstrong Cork, as head; Arthur Peterson becomes new chief of Products Advisory Section of Chemical Branch—U. S. Stoneware announces new liquefied "Tygon" formulations which form stable non-adhesive films when dried and provide easily-removed temporary protection to highly polished surfaces—Sharp increase in commercial use of protein materials is reflected in patent literature of past year—Dow announces revolutionary plastic pipe made of thermoplastic resin known as Saran which can be welded after heating to 350°-400°F. and has many excellent, unusual characteristics—Productive capacity of Cia Hulera de Parras is doubled as demand for guayule rubber increases—Deaths: Dr. Henry C. Miller, well-known chemist; Thomas S. Grasselli, former president of Grasselli Chemical and a du Pont vice-president for many years; Jacob F. Schoellkopf, Sr., founder of famous Schoellkopf Gold Medal Award and pioneer in aniline color industry.



## September

Donald Nelson announces selection of William M. Jeffers,

president of Union Pacific, as Rubber Administrator—WPB orders nationwide conservation of chemical fertilizers to save nitrogen vital for war production—Liquid Carbonic purchases Cheney Chemicals—Industrial and fine chemicals are in heavy demand and most industrial chemical supplies are better than in previous months—Government increasing purchases of sulfuric acid; all vitamins in demand—Du Pont and Rohm & Haas and certain of their officers charged by Department of Justice with engaging in world-wide conspiracy to suppress competition in and monopolize manufacture and sale of acrylic plastics—President's special rubber investigating committee issues report proposing seven-point synthetic rubber program and nation-wide rationing of gasoline—Chemicals Branch augmented by new Drug and Cosmetics Section headed by F. J. Stock, formerly with Walgreen Drug—Copper chemicals under complete allocation—Chemicals Branch announces referee board composed of eminent chemists and chemical engineers, who report on merits of competing chemical processes submitted to WPB and also act in an advisory capacity in assignment of raw research problems to various laboratories all over nation—Charles Pfizer & Co., Inc. opens new laboratory and office building—Wartime research is theme of American Chemical Society meeting with more than 4,000 chemists, engineers, and industrialists attending the 104th session in Buffalo—Dr. Stephen E. Freeman, Pittsburgh Plate Glass, presents paper at A. C. S. meeting reporting development of new procedure for fractionating natural domestic oils and fats resulting in products similar to imported coconut oil, palm oil and perilla oil—Members also hear paper on process for recovering vanadium from Idaho's phosphate rock reported by Dr. J. Perry Morgan, Standard of New Jersey, working with Dr. Arthur W. Hixson of Columbia—Lend-lease arrangement, wherein the United States will act as purchaser of fats and oils in specified areas of world and Britain as purchaser in others, is set up for importation of badly needed fats and

oils—National Wholesale Druggists Association holds gala Victory Banquet and draws record crowd—Committee of engineers and scientists appointed to define scope, functions, and methods of operations of the projected Office of Technical Development, WPB—National Dairy Products Corp. and B. F. Goodrich Co. announce government sanction of a plant for making "a rubber-like substance from by-products of dairy processors"—Koppers Co. is erecting plant in East Central state to convert grain alcohol to butadiene and also produce styrene, products of vital importance to manufacture of Buna-S synthetic rubber—Joseph E. Seagram & Sons, Inc. begin work on Louisville pilot plant for fermenting grain to produce butanediol for making butadiene—Monsanto Chemical Co.'s Central Research Laboratory Department is constructing 12 buildings for additional research and development near Moraine City, Ohio—Production begins in new \$16,000,000 magnesium plant of Diamond Magnesium Co.—Industrial Research Institute holds largest meeting in its history in Buffalo's Hotel Statler—Dr. G. S. Whitby, outstanding fundamental research chemist, added to faculty of Akron University as professor of rubber chemistry—Herbert E. Smith elected president of U. S. Rubber Co.—Government characterizes chemical industry as "in the very heart of war production, particularly in munitions manufacture" and gives chemical producers new higher preference ratings for obtaining maintenance repair and operating supplies—Three-man War Department Board of Contract Appeals established in Office of Under Secretary of War—War Liabilities Adjustment Board appointed to facilitate use of all productive facilities during war and assure small businesses the opportunity to re-enter a competitive post-war economy—Chlorine, aqua ammonia, ammonium carbonate and methyl ethyl ketone extremely difficult to obtain—Shortage of insecticides essential in combating pests which prey on cotton crop reported by Dr. R. C. Roark of Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture—Deaths: Dr. Ross Aiken Gortner, internationally known for his accomplishments in biochemistry; Joseph E. Lockwood, eminent naval stores consultant.



## October

Office of Price Administration eliminates 120 WPB report forms and improves

and simplifies 132 others—National Paint, Varnish & Lacquer Association surveys feasibility of using any present or future surplus production capacity in paint industry for production of war materials other than paint, varnish, and lacquer products—Containers Branch, WPB, warns of increasing scarcity of critical materials for manufacture of containers and appeals to industry for concentration of research facilities on development of usable substitutes—Speakers at fall convention of Society of Plastics Industry report that the plastics industry, which trebled its production between 1933 and 1939 and doubled it between 1939 and 1941 must expand to greater levels to replace scarce materials and help close inflation gap—Coal tar crudes very limited in supply—Considerable amounts of phenol are being shipped under lend-lease—Entire nation's production of distilled spirits diverted for war purposes to industrial alcohol—Dr. Donald S. Frederick, Rohm & Haas, receives annual John Wesley Hyatt Award for his work in adapting transparent, colorless, acrylic plastics to needs of military aircraft—OPA frees from price control all furfural, sold or delivered for use in manufacturing synthetic rubber, of which it is an important ingredient—Controlled Materials Plan now under way will produce sweeping change in allocation procedure—Substitutes for phenolic plastics and shellac declared vital in new WPB listing of scarce critical materials—Alien Property Custodian, Leo T. Crowley, announces that drawings and specifications of foreign-owned patent applications seized by his office will be printed and made available to American industry at nominal price—Professor Arthur B. Lamb of Har-

vard University, authority on inorganic chemistry, awarded 1943 William H. Nichols Medal of N. Y. Section of A. C. S., one of the highest honors in chemical science—Government has \$400,000,000 invested in ordnance explosives plants operated or now being designed by Hercules Powder for War Department—B. F. Goodrich Co. gives Department of Agriculture thousands of seeds from selected Hevea rubber trees for cultivating the growth of rubber plants in this hemisphere—Standard Oil of New Jersey acquires full ownership of Standard Alcohol Co.—Dr. H. N. Brocklesby, authority on marine oils and vitamins, appointed to scientific staff of Special Products Division, Borden Co.—Tremendous shift to glass containers with increasing demand on part of glass industry for alkalis—Gypsum being used to replace lumber in building industry; lumber is a strategic material but there are large surpluses of gypsum—Fertilizer manufacturers receiving their ammonium sulfate and sodium nitrate contract deliveries—Superphosphate production on upgrade—Ascorbic and citric acids in tight position—Caustic soda and soda ash wanted in South America—Bulk of methanol production going into manufacture of formaldehyde for war plastics and synthetic resins—Salicylates extremely difficult to find on market—Food Price Division, OPA, created with A. C. Hoffman as director to formulate, initiate, and administer food price regulations.



## November

Chemicals Division, War Production Board, releases second

monthly report on allocations of individual chemicals and reveals general tightening in benzene allocations, but allocations of glycerine granted in full—Unrestricted sale of rubbing alcohol and its compounds forbidden to save 2 million gallons yearly—J. L. Bennett, manager of chemical operations, explosives department, Hercules Powder, elected president of American Institute of Chemical Engineers—War Manpower Commission and Selective Service System developing the Manning Table Program which provides inventory of worker requirements and a basis for orderly withdrawal of physically fit men of military age as replacements become available from rest of population—Government initiates program to purchase rotenone from Brazil and Peru,  $4\frac{1}{2}$  million pounds in next 12 months—Fertilizer situation improves and nitrogen and phosphorus consumption expected to reach record high—Greater Buffalo Press, Inc., operating under name of Chemical Process & Supply Co., denied all priority assistance for six months because of illegal use of restricted pigments—Koppers Company completing huge plant to produce 37,500 short tons of styrene from coal and 80,000 short tons of butadiene from agricultural alcohol annually for making one-seventh of the 1,000,000 tons of Buna-S synthetic rubber called for by government—Dr. D. P. Morgan appointed director of chemicals division of WPB; Dr. Reid, former director, becomes Director of Commodities Bureau—Dr. William W. Skinner appointed chief of Bureau of Agricultural Chemistry and Engineering—International Minerals & Chemical Corp. acquires ownership of Amino Products Co.—B. F. Goodrich Co. reports another of government-financed plants has begun production of general purpose synthetic rubber for armed forces—Phillips Petroleum Co. announces new catalytic refining process to extract more materials for synthetic rubber and aviation gasoline from crude oil—Alien Property Custodian sets up complete regulatory system for transactions subject to his control—Hundreds of scientists and technologists collaborate in nation's quest to discover rubber bearing plants which can be grown on large scale in North America—WPB announces Controlled Materials Plan for "vertical" allotment which will insure adjustment of production schedules within material supply to meet production requirements—Harvey N. Davis, president of Stevens Institute of Technology, named

director of newly organized Office of Production Research and Development, WPB, which will make all WPB contracts for research and development—Dow Chemical will construct and operate \$2,500,000 plant in Texas, title to remain in Defense Plant Corp.—Inter-American Institute of Agricultural Sciences established to aid continental research and experimental stations for agricultural science in American republics—Deaths: Bennett B. Bristol, Foxboro Company; William S. Farish, president of Standard Oil Co. of New Jersey; Harry J. Schnell, president of Schnell Publishing Co. and editor and publisher of *Oil, Paint, and Drug Reporter*.



## December

Chemicals Division, War Production Board, announces development of

engineering program for series of war alcohol plants to be built when needed—Department of Agriculture estimates shortage of more than 800,000,000 pounds of fats and vegetable oils in country's 1943 requirements for food and industrial purposes—Perkin Medal awarded to Dr. Robert E. Wilson, President of Pan American Petroleum and Transport Company, for his research studies and industrial contributions in flow of fluids, use of tetraethyl lead, petroleum hydrocarbon cracking, and adoption of chemical engineering principles by oil industry—Albert E. Marshall resigns as a director of General Aniline & Film Corp. and executive head of its Agfa Ansco division to become chairman of board of directors, E. Leitz, Inc., makers of Leica camera—29th annual meeting of National Association of Insecticide and Disinfectant Manufacturers finds outlook gloomy for their industry—Phenol, used in making explosives, synthetic finishes, and plastic glue for plywood, becoming increasingly scarce—Abundant supplies of sulfuric acid, alkalis and soda ash available—Committee of leading research and development men formed to serve as liaison between their companies and referee board of Chemicals Division, WPB—Lend-lease needs cut amount of oils for soap manufacture—Expect to fill basic requirements of agriculture for arsenical insecticides in 1943—Dr. Thomas Midgley Jr., vice-president of Ethyl Corp. and internationally known for discovery of tetraethyl lead as gasoline anti-knock agent, elected president of American Chemical Society for 1944—Herald R. Cox, formerly Principal Bacteriologist of U. S. Public Health Service, Rocky Mountain Laboratory, joins Lederle Laboratories as associate director of research in charge of virus and rickettsial diseases—Roy A. Shive, Calco Chemical Division, American Cyanamid Co., called to Washington by Rubber Reserve Co. to supervise production and development of chemicals for synthetic rubber—Harold Boeschstein, president and general manager of Owens-Corning Fiberglas, appointed director of Controlled Materials Plan Division and chairman of Controlled Materials Board, WPB—Demand for ethyl cellulose four times greater than supply—Use of totaquina newly developed product of cinchona bark for fighting malaria in this country, said to free available supplies of quinine for armed forces—G. D. Searle & Co. opens new pharmaceutical laboratories in Chicago—Department of Justice charges seven manufacturing companies, two trade associations, and a testing laboratory with monopolistic practices and restraint of trade in fluorescent lighting industry—Canadian control of chemicals and allied products closely coordinated with U. S. program—Per K. Frolich, director, Chemical Division, Esso Laboratories, succeeds Harry N. Holmes as President of A. C. S.—Josiah K. Lilly, chairman of board of Eli Lilly and Co., receives Remington Medal for distinguished work in pharmacy—Deaths: Dr. Harrison E. Howe, editor of *Industrial and Engineering Chemistry* and one of best known members of American chemical profession; Frederick M. Becket, former vice-president of Union Carbide and Carbon and former member of consulting editorial board of **CHEMICAL INDUSTRIES**.

# BETWEEN THE LINES

**With the government now stressing its wartime requirements of fluorspar, our special behind-the-scenes column is timely this month with a review of the situation. Outlook is pretty good for vital requirements because of conservation measures and increased production. Some imports also can be expected and new domestic sources have been located.**

**S**OME time ago this department dealt with a comparatively little known material, fluorspar, in some aspects of its grading, production, and emergency pricing, because of a recognition of its coming importance. This interest is shared in the chemical industrial field. The government is now stressing its defense requirements, hence this second installment on the subject.

Fluorspar is a mineral substance, the product of mines in the Ohio river Valley, particularly in Kentucky and Illinois. Due to increasing need of material, a part of the supply will come from imports in 1943. Normally however, this major producing area of the United States furnishes more than 80 per cent of the usual requirements of domestic industry.

## Many Uses

While it is usually identified with steel manufacture, fluorspar is an essential for production of refrigerants, an important factor in 100-octane gasoline manufacture, and vital to aluminum manufacture. Acid grade fluorspar (see previous article for discussion of grades) is an absolute requirement for making aluminum, because from fluorspar is made hydrofluoric acid. In turn this is used to make cryolite, then aluminum fluoride. These act as the electrolyte in the electrolytic process for extracting aluminum from aluminum oxide.

Thus, because of the aluminum content, it can be stated that 1500 pounds of fluorspar is represented in each four-engined bomber of the Flying Fortress type; 150 pounds of fluorspar is represented in each 27-ton American tank, while thousands of tons enter the manufacture of 100-octane gasoline used for fueling both air and land vehicles. Estimated requirements of acid grade fluorspar for the coming year, accordingly, range upward of 150,000 tons.

Hydrofluoric acid has other military uses, is the only acid that will etch glass, while cryolite is widely used as an insecticide. The increasing field for high test gasoline, which probably will be standard for many land vehicles in the post-war period, means that fluorspar will continue in demand for such production.

## Current Problem

The current problem in production is one of balancing essential uses against the available supply. The requirements of all grades are expected to reach half a million tons in 1943, compared with shipments in 1941 of 320,000 tons, which in turn, was an 80,000 ton increase over 1940 shipments. Against this demand, domestic production was increased this year to 350,000 tons. There is however, a potential 1943 shortage for war production of 100,000 tons, and this is the cause of current action by the Government.

In line with the balanced usage policy, an initial step will be a voluntary program by which it is hoped steel producers can reduce their needs 10 to 15 percent. This would help avert a possible 50,000 ton shortage in the metallurgical grade in the coming year. In addition, a number of civilian producers are going to feel the pinch in other grades of the mineral. The ceramic grade, which as its name implies is used by pottery products manufacturers, and specifically in manufacture of lavatory equipment (enameling, etc.) is an essential of a number of war products. Other industries than those in the chemical field are thus displaying concern over recent announcements from official sources as to curtailment steps either to be announced, or already agreed on by industry representatives meeting with Washington officials. For instance, ceramic grade is used to the extent of about 20,000 tons annually, but there is another grade of fluorspar in exceptionally pure state, that is used in making optical glass. This obviously will be in demand for military purposes.

## Most Used

The metallurgical grade is the most widely used, more than 300,000 tons being estimated as the 1943 requirement for steel making. It imparts fluidity to the slag, in molten form. Thus, any reduction in the amount of fluorspar used is reflected in a falling-off in slag-flow, with consequent slowing-up of operations.

Nevertheless, conservation is one of the measures now about to be taken. In addition, the government is turning, through the Bureau of Economic Warfare, to friendly sources of fluorspar imports from abroad, notably in Newfoundland, to the north, and Mexico, southward. The Metals Reserve Company, a government agency, will work with BEW to obtain what are intended to be substantial supplies from these countries.

## Price Actions

Domestically, price actions are being taken to stimulate production. The price for metallurgical grade has recently been upped about \$3 per ton, the 85 percent calcium fluoride-5 percent silica spar now bringing \$28 per ton in the mine areas of Kentucky-Illinois.

As in nearly every industry, manpower is becoming a critical factor in domestic production. The output in 1943 will depend on the available miners almost entirely, it is stated. In addition to efforts to reduce time-loss among those miners still on the job, the government is checking losses through enlistments, the draft, those leaving to go into other work paying higher wages and other drainage.

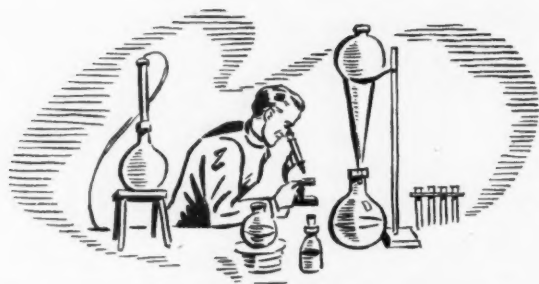
Some hope is expressed that production can be stepped up through such means, but the government agencies are frankly pessimistic that imports will meet the deficit in the coming year. More time will be required to organize the flow from outside sources.

## New Sources

Despite the manpower situation in this industry however, efforts have been made the past year to locate new domestic sources of ore. The U. S. Bureau of Mines and the Geological Survey among other agencies, both report extensive explorations. Some prospect exists that these efforts will bear results in 1943, drillings in the Western part of the country promising important new sources of supply, it is said. In addition to areas in the old producing states, others now being searched include New Mexico, Colorado, Utah, and Idaho. A substantial amount of fluorspar will be obtained from such new sources this coming year, according to the prospect, and these will account for some 40,000 tons annually as they are developed.

## Current Outlook

The current outlook is that between conservation measures and increased production, with such imports as can be arranged, vital requirements for 1943 probably will be satisfied. Meantime, some use of stockpiles may be necessary at times, it is expected, until the year's production is well under way.

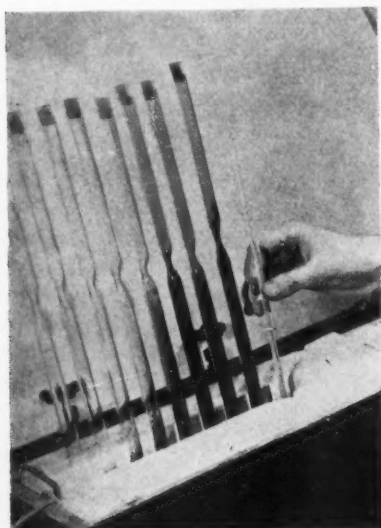


## THE LABORATORY NOTEBOOK

### Stove with Nine Temperatures

Seeking better electric insulation materials, chemists at Westinghouse Research Laboratories have devised an iron bar stove that provides nine different temperatures at one time.

Portions of the test material are dropped into nine test tubes, arranged in deep holes drilled in an iron bar at regular intervals. At one end of the bar is an electrical resistance heater; the other end is cooled by water running through metal tubing soldered against it. Heat travels down the bar in steadily decreasing volume, and the distance between each hole evenly divides the temperature, which is calculated by arithmetic. For example, if it is 25° C. at the cool end and at the hot end 225° C., divide 200 by 9. In this case the temperature difference from one tube to the next is 22°.



Most insulation contains plasticizers to make it pliable yet tough. These plasticizers must withstand the heat at which a motor or transformer operates; if they boil off, the insulation becomes brittle and may crack, causing a short circuit. With the new furnace the temperature at which plasticizers evaporate is determined by noting the first test tube in which vapor condensation on the upper walls has begun. After removal from the furnace, the

materials remaining at the bottom of the tubes are analyzed to determine the kind and quantity of ingredients evaporated.

### Cleaning Glass Tubes

One reader writes to say that he does not know of anything better for cleaning glass tubes, including boiler gage glasses, than dilute hydrofluoric acid. Be extremely careful though, because hydrofluoric acid dissolves nearly all substances, including glass. It does not dissolve lead and is therefore usually kept in containers made of that metal.

Soak the glasses in a 5% solution of the acid for 15 to 20 minutes and then wash and rinse in clean water—preferably running water. Blowing out with filtered compressed air will then assist further—provided you have such air on tap. Usually the results are first class without the air blow finish. Nitric acid, also, does very well, but hydrofluoric acid is better.

### Photoelectric Color Grader

A method of grading the color of naval stores products has been developed by Robert H. Osborn, Experiment Station research chemist, Hercules Powder Company. The apparatus consists of a light source, colored glass filters, and a photocell.

The average time for a single meter reading is half a minute, about as long as it now takes the eye of an expert color grader to inspect a sample. The instrument eliminates errors due to human eye fatigue, and grades colors accurately despite dirt, haze, or surface imperfections of samples analyzed.

A single meter reading indicates the ratio of transmissions of a rosin sample for light beams of two different colors. Any class in a wide range of transparent liquid or solid naval stores products may be graded rapidly, because the electrical circuit arrangement permits the expansion or contraction of the scale. The instrument can also be used as a chemical colorimeter.

The color grader is manufactured by the Rubicon Co. and is available to other laboratories through a royalty-free license.

## INDUSTRY'S BOOKSHELF

**Rogers' Industrial Chemistry**, a manual for the student and manufacturer, edited by C. C. Furnas, D. Van Nostrand Company, Inc., New York, N. Y., sixth edition in two volumes, 1721 p., \$17.00.

The tremendous changes in the growth of the chemical industry and in the techniques of chemical education during the past twenty years necessitated the thorough revision and rewriting of this outstanding work in the industrial field. Increased emphasis is given to the interrelationships and the background knowledge of engineering and economics common to all chemical processes. Completely new branches of the industry are included in the sixth edition. This resulted in the removal of several chapters which appeared in the older editions in order to hold the text to its survey purpose.

Section I, Background of the Chemical Industry, devotes Chapters 1-6 to the economic pattern, the unit operations, the organic unit processes, high pressure processes, industrial instrumentation, and water for municipal and industrial use.

Then follows expositions of the more important divisions of the industry by recognized authorities in the field. These are presented by discussing the following questions: (1) What are the raw materials? (2) What is done with them? (3) What are the products and for what are they used? (4) What are the important features of the economic pattern which weave the varied techniques into a workable industry?

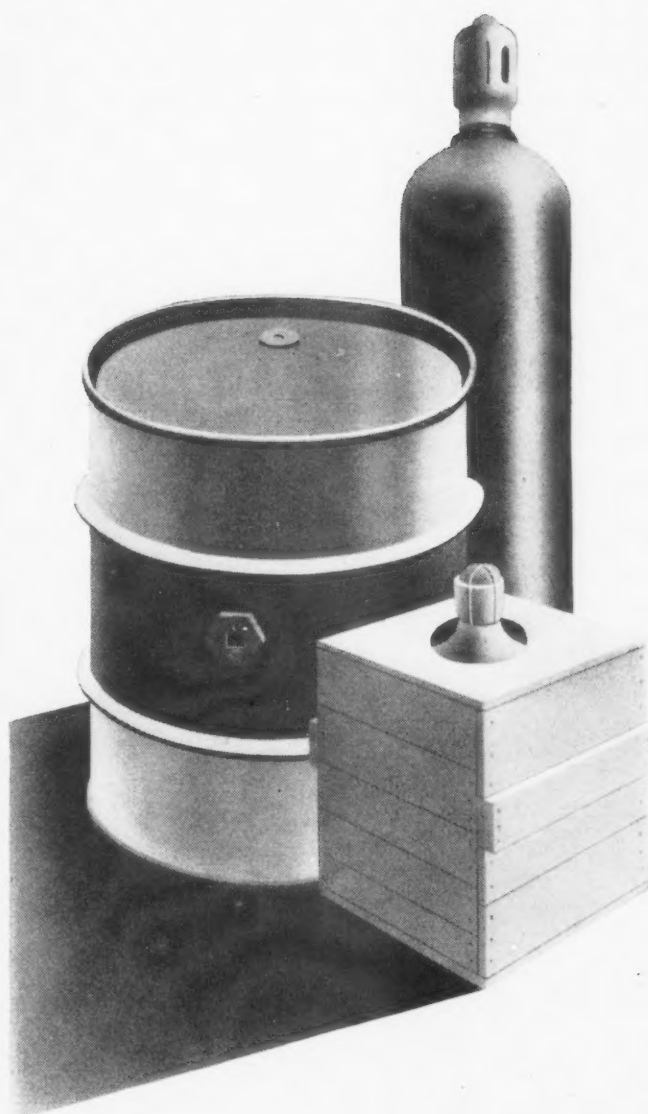
Sections II to VIII describe Heavy Chemicals and Allied Products, Fuels and Their By-Products, Refractories and Allied Materials, Metallurgical Products, Surface Coatings, Products of Organic Synthesis, and Natural Organic Materials.

To emphasize the unity of the whole industry, the editor, C. C. Furnas, Associate Professor of Chemical Engineering, Yale University, has incorporated cross references directing the reader to other parts of the book for information given in other fields which have bearing on the point under discussion. Especially valuable are the numerous footnote references to original sources of information. At the end of the chapters, classified bibliographies guide the person who

(Continued on page 82)

# CONTAINERS ARE VITAL

✓ *handle carefully* ✓ *return promptly*



CONTAINERS today are worth their weight in gold. Every drum, cylinder and carboy must do the work of three or four in peacetime.

YOU can help to keep essential chemical materials moving smoothly and quickly and *assure speedier delivery of your next order* by following these five simple steps:

1. Handle all containers with care.
2. Empty contents as soon as possible.
3. Don't use for other materials...don't even rinse drums and carboys with water.
4. Replace bungs in drums, outlet caps on cylinders, and thoroughly drain carboys.
5. THEN RUSH THEM BACK WHERE THEY CAME FROM!

Every user of chemicals who follows those five suggestions will be helping save materials...and time...two vital ingredients for victory! MONSANTO CHEMICAL COMPANY, St. Louis, Missouri and Everett Station, Boston, Massachusetts.



"E" FOR EXCELLENCE—The Army-Navy "E" burgee, "representing recognition by both the Army and the Navy of especially meritorious production of war materials," has been awarded to Monsanto and replaces the Navy "E" first awarded Monsanto December 31, 1941.

**MONSANTO**  
**CHEMICALS**

SERVING INDUSTRY...WHICH SERVES MANKIND

## New Texas Tin Smelter

These photographs on tin production in the U. S. were submitted recently by the Office of War Information. (1) Raw tin ore from South American mines is stored at the new Texas smelter. (2) Emptying bags of the raw tin ore on a conveyor which feeds the crusher. Crusher reduces the larger particles to uniform size and discharges ore ready for the first stages of smelting. (3) Tin ore just discharged from the crusher is stored in large stockpiles prior to further operations. (4) These workers are removing ore from the leaching and bleaching processes and loading it in cars from the furnaces. (5) Long tubes carry smoke thrown off by furnaces to Cottrell precipitator units. All tin carried in the smoke is removed by an electrical current of 65,000 volts and added to the metal secured in the other stages of the process. (6) Tapping the furnace where pure tin is extracted from the raw ore. Tin is drawn off into floats which weigh about 18 tons when filled. Metal is then conveyed to polling kettles



1



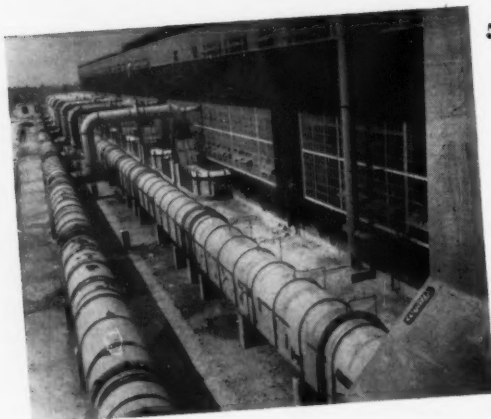
2



3



4



5

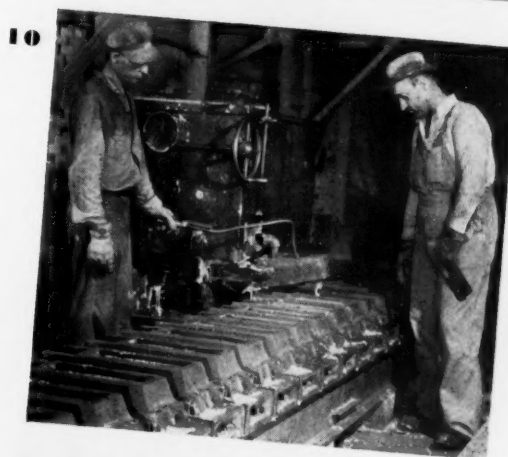
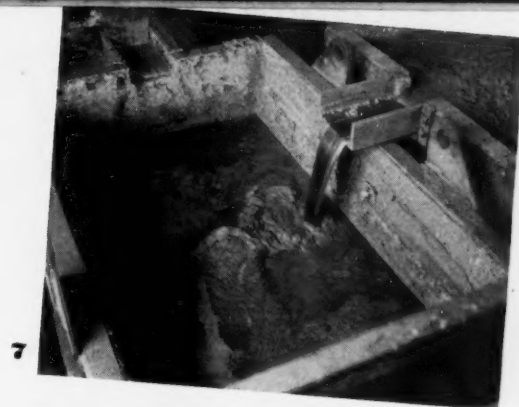


6

## Most Modern in the World

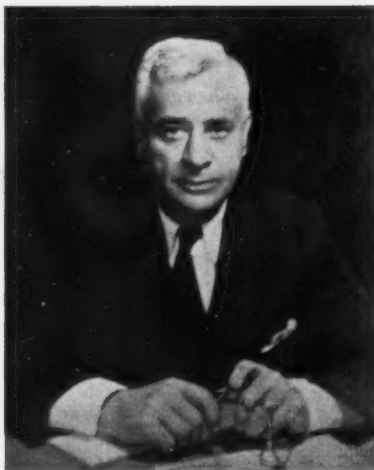
where dross is skimmed off and forwarded to another furnace for remelting.

(7) Tapping furnace. This is a closeup view of the processes described in (6). (8) A sample of slag from one of the furnaces is tested to determine its tin content. After it has cooled the sample is sent to the plant laboratory for analysis. (9) These are the "pot boilers." Here pure metal is kept at a temperature of about 750 degrees F until it is poured into the molds. (10) Pure tin is molded into bars. It is usually kept at a temperature of about 650 degrees while being molded. Metal is ready for removal in about 10 minutes after pouring. (11) Bars of pure tin are stacked in the warehouse. Each weighs about 80 pounds and is worth about \$41.60. (12) This young technician is using a laboratory balance to determine amount of tin remaining in slag from furnaces. Accurate laboratory control is important in high recovery percentage at plant.





1



2

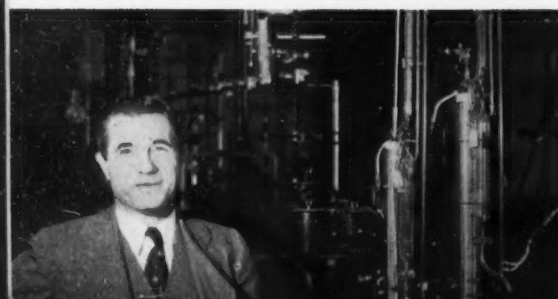
*Underwood & Underwood*



3



4



5



6



7

## New Commercial Solvents Laboratory in Terre Haute

The new Commercial Solvents Corp. laboratory in Terre Haute, Ind., provided an interesting visit for one of the editors of CI recently. Ralph L. Eriesson of the technical service division took most of the photos on this page and was kind enough to let us reproduce them.

(1) Outside view of the laboratory.

(2) A photograph of a photograph of

8

Major T. P. Walker. (3) Dr. Paul W.

Bachman, assistant research director.

(4) Dr. H. R. Stiles. (5) Dr. G. H.

Morey. (6) Dr. Jerome Martin, re-

search director. (7) Charles Bogin,

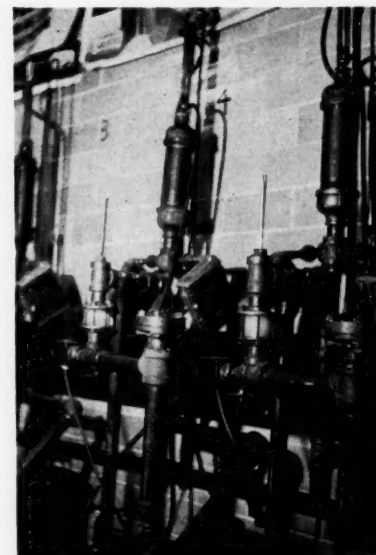
head of the lacquer laboratory. (8)

Test units in the antifreeze laboratory.

(9) Dr. J. K. Dale, group leader.

(10) Kenneth H. Hoover, manager of

research and development.

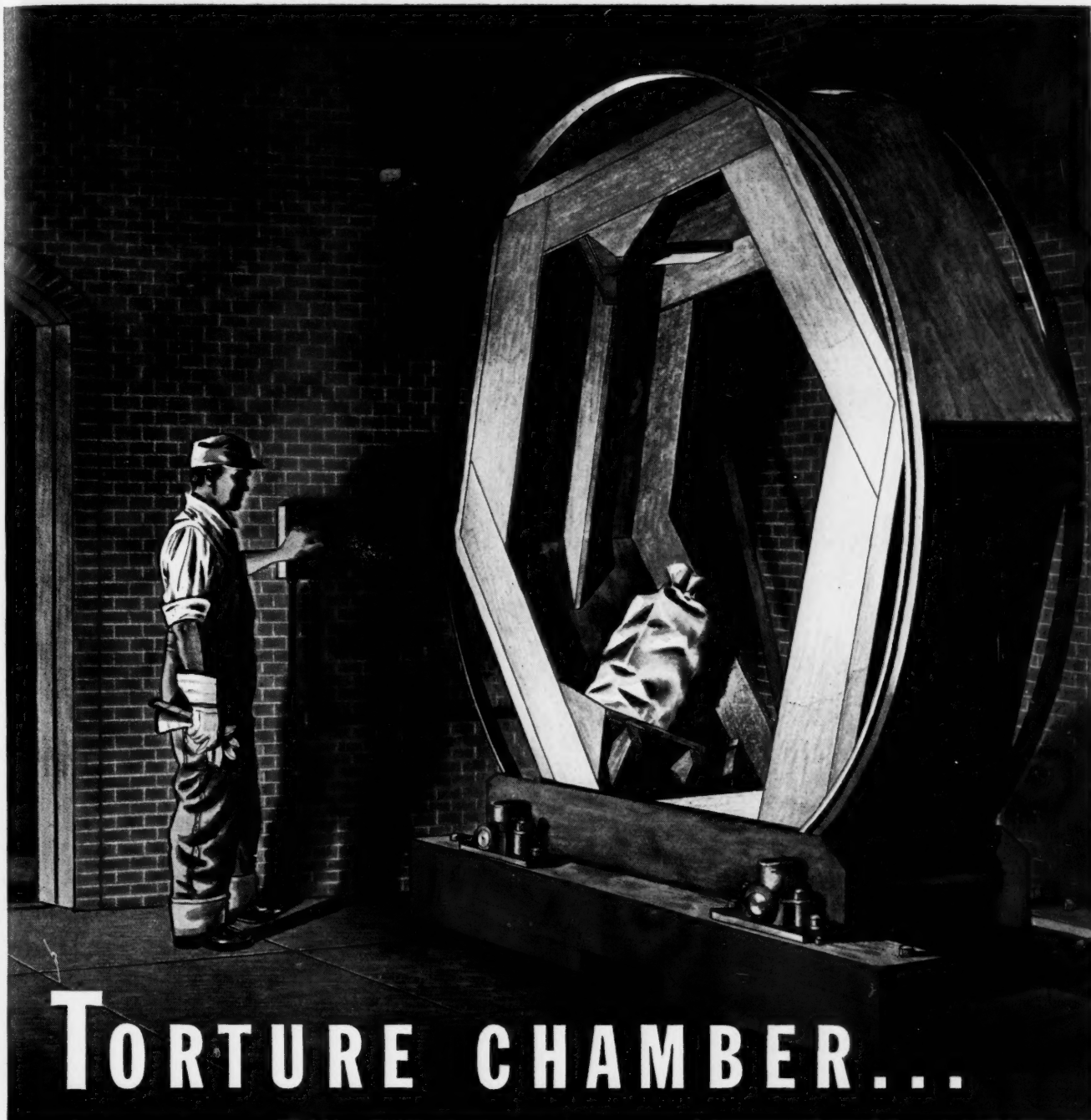


10

9



ta  
&  
  
an  
th  
pl  
me  
ter  
co  
  
kr  
fil  
inc  
ser  
  
K  
Ja



# TORTURE CHAMBER...

**C**AN kraft paper take it on the chin? How rough a handling will the container stand? That's what this Union Bag & Paper Corp. testing drum finds out.

Newly designed kraft paper packages and containers have to prove through this and other tests that they can replace those formerly made of scarce metal, burlap and other materials...materials no longer available for normal commercial use.

Just how well America's abundant kraft paper resources help manufacturers fill this need in our wartime economy is indicated by the fact that now kraft is serving in thousands of different uses!

## **WITH MULTI-WALL CONSTRUCTION,**

Union Bag & Paper Corp. offers highly efficient methods of packaging and shipping agricultural, chemical, fertilizer, food and rock products...affords a decided weight and space-saving advantage.

## **IN THE FIELD OF WAR PACKAGING,**

Union Bag & Paper Corp. is able to make kraft papers resistant to oil, grease and water, super-strong, non-scuff, flavor-sealing, fold-enduring, and eye-appealing...is able to make kraft containers that have one, or ALL of these important advantages.

Whatever your wartime  
container

or packaging problem...  
no matter how difficult it  
may seem...consult

**UNION BAG  
& PAPER CORP.**

WOOLWORTH BUILDING NEW YORK, N. Y.

**KRAFT PAPER—THE SERVICE UNIFORM OF AMERICAN PRODUCTS**



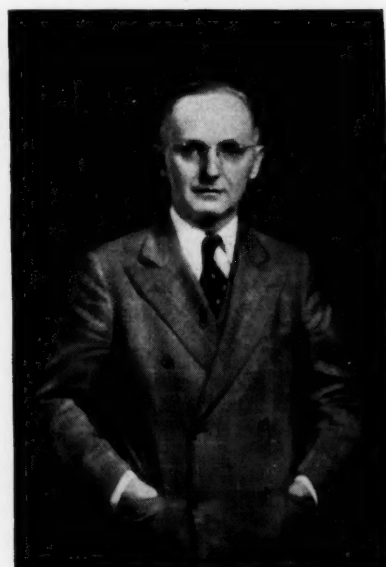
## Headliners in the News

Upper left, two Army-Navy "E" awards for production excellence were awarded to Dow Chemical Co. last month. Maj. Gen. W. N. Porter, chief of Chemical Warfare Service, is at the microphone.

Left, Dr. Lloyd F. Nickell (center), managing director of Monsanto Chemicals Ltd., North Wales, chats with Dr. L. McMaster, head of the department of chemistry, Washington University, and Dr. F. W. Russe, vice-president of Malinkrodt Chemical Works, at a dinner

given in his honor by Edgar M. Queeny, president of Monsanto, last month in St. Louis. Above, Ferro Enamel Corp. received the Army-Navy "E" award for excellence in war production.

Below left, Grover M. Hermann, president of American-Marietta Co., Chicago, who announced this month the acquisition by his company of the Ferbert-Shorndorfer Co., industrial paint manufacturer, Cleveland. Below center, Winfield B. Heinz, Calco Chemical Division, American Cyanamid, who resigned his position last month to enter the field of consulting engineering with offices in Bound Brook, N. J. Below right, Dr. Albert W. Davison, former head of the industrial engineering curriculum at Rensselaer Polytechnic Institute, who has been appointed scientific director of the research laboratories of Owens-Corning Fiberglas Corp. Right, Clifton C. Candee has been appointed Technical Service Director of the Lake and Pigments Department, Calco Chemical Division, American Cyanamid.



# Have You Investigated the Possibilities of the ALKYL PHOSPHORIC ACIDS?

Here is another group of organic phosphorus compounds that offer interesting possibilities for further chemical research. Already many important applications have been suggested . . . among them those indicated in the adjoining column.

Properties of the Alkyl Phosphoric Acids . . . summarized in the table below . . . have been carefully checked by Victor research chemists. A few of the compounds are in commercial production for war purposes. Because of present limitations in the supply of certain critical materials, it is not possible to submit samples of all products listed. Where available, however, they will be gladly sent upon request.

## Typical Uses for Alkyl Phosphoric Acids

**Catalysts** for the hardening of urea-formaldehyde resins.

**Accelerators** for shortening baking schedules and lowering baking temperatures.

**Anti-corrosive agents** (used alone or dissolved in oils or solvents)—minimize corrosion of alloy bearings when added to lubricants. Also aid in preventing break-down of lubricants under high bearing pressures.

**Soldering fluxes**—eliminate obnoxious fumes and corrosive residues, reduce spattering. Definite advantages gained in welding zinc, magnesium, and aluminum.

**Metal cleaners**—combine grease-solvent power with rust inhibition.

### PROPERTIES OF ALKYL PHOSPHORIC ACIDS

COMPOUND	Mol. Wt.	Sp. Gr. at $x^{\circ}/4^{\circ}$ C.	Ref. Index $n_D$	Decomp. Point $^{\circ}$ C.	SOLUBILITY*							
<b>Acid Orthophosphates, <math>R_2HPO_4</math></b>					A†	B†	C†	D†	E†	F†	G†	
Dimethyl—	126	1.335 (25)	1.408	172-76	S	S	S	I	I	I	I	S
Diethyl—	154	1.186 (25)	1.417	>175	S	S	S	S	S	PS	S	S
Ethyl i-amyl—	196	1.071 (25)	1.421	>175	I	S	S	S	S	S	S	SS
Ethyl octyl—	238	1.028 (25)	1.433	>175	I	S	S	S	S	S	S	S
Ethyl capryl—	238	1.016 (30)	1.430	167-71	I	S	S	S	S	S	S	S
Dibutyl—	210	1.057 (25)	1.428	>175	I	S	S	S	S	S	S	S
Butyl amyl—	224	1.037 (25)	1.428	>175	PS	S	S	S	S	S	S	S
<b>Acid Orthophosphates, <math>RH_2PO_4</math></b>												
Monomethyl—	112	1.511 (25)	1.420	169-73	S	S	S	SS	I	I	I	S
Monoethyl—	126	1.430 (25)	1.427	165-70	S	S	S	S	I	I	I	S
Mono i-propyl—	140	1.291 (30)	1.426	74-80	S	S	S	S	I	I	I	SS
Mono n-propyl—	140	1.331 (30)	1.427	122-28	S	S	S	S	I	I	I	I
Mono n-butyl—	154	1.18 (25)	1.429	105-10	S	S	S	S	S	SS	SS	SS
Mono i-amyl—	168	1.142 (25)	1.432	160-70	I	S	S	S	S	S	S	SS
Mono octyl—	210	1.066 (25)	1.444	170-75	I	S	S	S	S	S	S	S
Mono capryl—	210	1.092 (25)	1.437	100-10	I	S	S	S	S	S	S	S
<b>Acid Pyrophosphates, <math>R_2H_2P_2O_7</math></b>												
Dimethyl—	206	1.562 (25)	1.425	197-200	SR	SR	SS	I	I	I	I	I
Diethyl—	234	1.507 (25)	1.437	141-46	SR	SR	S	I	I	I	I	I
Di i-propyl—	262	1.351 (25)	1.433	75-80	SR	SR	S	S	I	I	I	I
Di n-propyl—	262	1.374 (25)	1.441	96-100	SR	SR	S	SS	I	I	I	I
Di n-butyl—	290	1.228 (25)	1.431	165-69	SR	SR	S	S	S	I	I	I
Di i-amyl—	318	1.149 (25)	1.432	164-68	R	SR	S	S	S	S	I	I
Dioctyl—	402	1.094 (25)	1.448	151-53	R	SR	S	S	S	S	S	S
Dicapryl—	402	1.098 (25)	1.442	98-103	R	SR	S	S	S	S	S	S
<b>Acid Tripolyphosphates, <math>R_3H_3P_3O_{10}</math></b>												
Pentamethyl—	586	1.64 (25)	1.435	>175	SR	SR	S	I	I	I	I	I
Pentaethyl—	656	1.50 (25)	1.436	109-14	SR	SR	S	I	I	I	I	I
**Penta i-propyl—	726	1.405 (25)	1.439	58-63	SR	SR	S	SS	I	I	I	I
Penta n-butyl—	796	1.309 (25)	1.442	115-20	SR	SR	S	S	PS	I	I	I
Penta i-amyl—	866	1.233 (25)	1.438	123-28	SS	SR	S	S	S	S	SS	SS
Penta octyl—	1076	1.123 (30)	1.450	125-30	R	SR	S	S	S	S	S	S
**Penta capryl—	1076	1.125 (25)	1.445	73-78	R	SR	S	S	PS	S	SS	SS
<b>Acid Tetrapolyphosphates, <math>R_4H_4P_4O_{13}</math></b>												
Trimethyl—	380	1.694 (25)	1.440	>175	SR	SR	PS	I	I	I	I	I
Triethyl—	422	1.558 (25)	1.436	138-43	SR	SR	PS	I	I	I	I	I
**Tri i-propyl—	464	1.455 (30)	1.440	55-60	SR	SR	S	I	I	I	I	I
Tri n-butyl—	506	1.320 (30)	1.435	135-40	SR	SR	S	S	PS	SS	I	I
Tri i-amyl—	548	1.31 (25)	1.442	114-20	SR	SR	S	S	I	I	I	I
Tri octyl—	674	1.164 (25)	1.444	117-20	SR	SR	S	S	S	S	S	S
**Tricapryl—	674	1.187 (25)	1.448	65-70	SR	SR	S	SS	SS	S	SS	SS

\*S=Soluble, PS=Partially soluble, SS=Sparingly soluble,

I=Insoluble, R=Reacts, SR=Soluble and reacts. \*\*Unstable

A†—Water, B†—Alcohol, C†—Acetone, D†—Ether, E†—Toluene, F†—CCl<sub>4</sub>, G†—Naphtha.



## VICTOR Chemical Works

HEADQUARTERS FOR PHOSPHATES • FORMATES • OXALATES

141 W. JACKSON BLVD., CHICAGO, ILL., NEW YORK, N. Y., KANSAS CITY, MO., ST. LOUIS, MO., NASHVILLE, TENN., GREENSBORO, N. C. PLANTS: NASHVILLE, TENN., MT. PLEASANT, TENN., CHICAGO HEIGHTS, ILL.



*During 1943*  
*Rely on the Proved Dependability of*  
**DIAMOND ALKALIES**

# BOOKLETS & CATALOGS

## Chemicals

A450. *Aluminum* and its high reflectivity for light and radiant heat are informally discussed and illustrated in the current issue of *Aluminum Newsletter*. Aluminum Company of America.

A451. "Calcium Determination in the Presence of Magnesium by Standard Soap Solution" gives the full technical details of a rapid titration method for determining calcium in routine plant control. The result of two years of research, the new method is said to be simpler and quicker than the conventional gravimetric calcium analysis. Technical Paper No. 81 includes tables and graphs of laboratory data. W. H. and L. D. Betz.

A452. *Dyeing*. Dye penetration of chrome-tanned side leathers, dyeing rayon staple and blends, and modern methods of stain removal are described in Vol. XXXVII, No. 8 of *Dyestuffs*. Importance of color and its social, therapeutic, chemical, and biological values form the basis of another interesting article. National Aniline Division, Allied Chemical & Dye Corporation.

A453. *Feedwater Conditioning for High-Pressure Boilers* is detailed in terms of requirements of a balanced treatment, maintenance of clean evaporating surfaces, protection against corrosion, carryover, protection against embrittlement, testing for embrittling qualities, evaporators, hot-process water softener, reduction of silica, phosphate treatment, zeolite softeners, treating turbid waters, and the use of soda ash. Graphs, and schematic and flow diagrams illustrated the various treatments. Reprint No. 23. Cochrane Corporation.

A454. *Iontophoresis*. The pharmacologic aspects of drug administration by ion-transfer are investigated in a technical paper which describes the cause and prevention of galvanic burns and the determination of dosage. Current flow readings, graphs, and tables elaborate the laboratory data. *The Merck Report*, January. Merck & Co., Inc.

A455. *Phosphoric Acid*, as the reagent in single or two-stage water softeners, taking the place of mono-sodium, di-sodium, and tri-sodium phosphate and resulting in claimed better control of the alkalinity at a lower cost of reagents are described in the reprint. Comparisons of chemical costs as well as data showing the effectiveness of this treatment in typical installation are given. Cochrane Corporation.

A456. *Process Industries Quarterly*; Vol. 7, No. 2. 12-Page illustrated booklet contains story on fats and oils entitled, "Chemistry Outflanks the Burma Road", by A. G. H. Reimold, President of Woburn Degreasing Co. Also describes and illustrates a number of processing equipment items which concern the use of nickel and nickel alloys. The International Nickel Co.

A457. *Rosin in Soap Manufacture*. Based upon three years of research, the data indicate that rosin used as a part of soap stock and in correct proportion to other soap stocks has certain advantages, especially in spray-dried or powdered soaps. Gum and wood rosins were tested against water of two different degrees of hardness. The control was a neutral sodium soap; the rosins were intermixed with a white and a brown soap stock. The technical research report is complete with detailed tables, graphs, and diagrams illustrating each step in the procedure. Hercules Powder Co.

A458. *The Safety Clipper*; Vol. 1, No. 1. First issue of new publication to help promote safety among plant workers. American Optical Co.

A459. *Silicate of Soda* and its application as a protective lining for barrels are reviewed in the January "Silicate P's & Q's." Especially timely in the present critical container situation. Philadelphia Quartz Company.

A460. *Tin-Base Alloys, Hardness of*. The effect on hardness, produced by quenching from the highest practicable temperature followed by prolonged tempering at 100°C. and 140°C., has

been examined for 80 tin-base alloys containing 4 to 14 per cent antimony and 0 to 10 per cent cadmium in a technical publication by W. T. Pell-Walpole. The paper shows that these alloys can be hardened by heat treatment and maintain a useful degree of improvement for at least 1,000 hours at the above temperature range. Tin Research Institute.

## Equipment — Containers

E804. *Bitumastic Bulletin*; No. 20, 1942. 4-Page bulletin carries story on "Corrosion—The Hidden Saboteur" and tells how it was held in check on merchant ships by bitumastic enamels. Wailes Dove-Hermiston Corp.

E805. *Capacitors*. How industrial plants can increase the capacity of their power systems 10% to 40% by adding capacitors enabling their present circuits to carry more load is explained in simple, easy-to-read paragraphs in the attractive booklet GES-3039. Installing capacitors to release load-carrying capacity will, according to the bulletin, use a minimum of critical materials, less than that necessary to install new circuits. Capacitors have been used in the Axis countries since the early beginnings of their rearmament programs as a result of the shortage of copper, steel, and rubber. General Electric Company.

E806. *Centrifugal Pumps*. Bulletin W-350-B2C describes, illustrates and gives specifications for a line of modern ball-bearing pumps built of 14.5% high-silicon iron for the handling of acids and acid slurries. Worthington Pump and Machinery Corp.

E807. *Ceramic Instrumentation and Control*. Metering and control instruments for glass tanks, ceramic furnaces,

**To Get Booklets — Fill Out Reverse Side**

Postage  
Will be Paid  
By  
Addressee

No  
Postage Stamp  
Necessary  
If Mailed In the  
United States

## BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 4288, Sec. 510, P. L. & R.

NEW YORK, N. Y.

## CHEMICAL INDUSTRIES

*The Chemical Business Magazine*

522 FIFTH AVENUE

NEW YORK, N. Y.

pottery kilns, and enameling furnaces are described in Bulletin No. 42-552. Economies in operation and improvement of product through more uniform production have resulted from their application to this processing field. Illustrated with schematic diagrams and photographs of the instruments. The Hays Corp.

E808. *Electrostatic, High Frequency Equipment* for drying and bonding of woods, plastics, chemicals, fibrous matter and other non-conducting materials are described in the Thermex booklet. The equipment utilizes the principle of generating heat within a mass by exposing it to a high frequency field which sets up molecular friction uniformly throughout the material being treated. As a result of this "inner penetration" action, rapid uniform heating is effected regardless of the thickness of the mass exposed to the high frequency, electrostatic field. Included are answers to the problems and questions which have arisen in connection with this new development. The Girdler Corporation.

E809. *Engineering Properties of "K" Monel*. Bulletin T-9 gives complete information on "K" Monel, a corrosion-resistant wrought alloy of nickel, copper and aluminum. Composition, physical constants, properties, working instructions, thermal treatment, corrosion resistance, mill products, range of mill sizes, and applications are discussed. The International Nickel Co., Inc.

E810. *Gas Engines*. Bulletin S-550-B21 describes, illustrates and gives specifications for vertical four-cycle totally enclosed gas engines. Worthington Pump and Machinery Corp.

E811. *Laboratory Review*. 12-Page booklet illustrated in two colors de-

scribes and gives specifications for laboratory sinks, acid-proof pipe and fittings, ventilating equipment, sump tanks, acid-proof floors and other acid-proof equipment and materials. The United States Stoneware Co.

E812. *Manganese Steel for the Steel Industry*; Bulletin No. 1142-SM. 48-Page booklet, illustrated in two colors, gives much information on the history and properties of manganese steels and describes their applications in the following categories: "Manganese Steel in the Blast Furnaces Department", "Manganese Steel in the Coke Plant", "Manganese Steel in the Rolling Mills", "A Proved Method for Successfully Reclaiming Spindles, Crabs, and Coupling Boxes", "Miscellaneous Steel Mill Castings". American Manganese Steel Division of the American Brake Shoe & Foundry Co.

E813. *Pipe Joint Compound*. Recently published booklet describes value of X-Pando Pipe Joint Compound in ending pipe leaks permanently and for other sealing applications. Litharge and glycerine have been used as a pipe joint compound but are now being diverted to the manufacture of war materials. The X-Pando replacement is said to be an improvement over the previous combination as it expands as it sets, correcting imperfections in threads and making flanged faces smooth. This compound will carry anything that can be carried in metal pipe, resists deflection, high pressure, and high temperature, and seals all types of joints in all types of metal pipes. The manufacturer says that X-Pando Pipe Joint Compound goes four to six times further than ordinary compound and is less expensive than previous combinations. X-Pando Corporation.

E814. *Rectifiers*. Bulletin ER-103

describes and illustrates in detail copper oxide rectifiers, their construction, operation and operating characteristics, and also gives answers to a number of questions which come up in actual practice. These rectifiers are made in units ranging from 300 amp. to 2000 amp. at 6 v., and from 150 amp. to 1000 amp. at 12 v. Special rectifiers of larger sizes are also produced. Hanson-Van Winkle-Munning Co.

E815. *Refractories*. The basic engineer's part in dealing with emergency refractory problems which may arise from continued operation of furnaces at near capacity levels are briefly outlined in the leaflet. Basic Refractories, Incorporated.

E816. *Shipping* of tomatoes, train-er planes, metal parts, and food products and their protection in transit for safe arrival are interestingly described and photographed in the current issue, No. 9, of *Acme Process News*. Acme Steel Company.

E817. *Shipping Boxes*. Built upon seventeen instances where war-goods packaging problems were solved by special corrugated shipping boxes developed in the H & D Package Laboratory, the booklet illustrates and describes corrugated boxes designed to accommodate multiple unit shipments, to facilitate packing and later use on the assembly lines, to protect adequately irregular shaped objects that must be packed in a compact area. The Hinde & Dauch Paper Company.

E818. *Thermometer Data*. The data contained in Bulletin No. G23-2 apply to all types of thermometers—whether indicating, recording, controlling, or combinations. Specific information is given on bulbs, methods of mounting, and sockets; capillary and its armor; charts and chart ranges; scale and scale ranges. Typical models of the various instruments mentioned are illustrated. Wheelco Instruments Co.

E819. *Transformers*. 20-Page booklet describes and illustrates dry-type transformers for power and lighting circuits of 600 volts and below. Contents include examples of applications, construction details, special applications, outlines and dimensions, and wiring diagrams. General Electric Co.

E820. *Wheelco Comments*; Vol. 2, No. 3. An explanation of thermocouple construction and assembly is given to aid pyrometric instrument users in selection of proper types. Also discussed and illustrated are thermocouple insulators, connector blocks, heads, protecting tubes, bushings and flanges, lead wire, and lead-wire connectors. Wheelco Instruments Co.

To get copies of these booklets or catalogs, fill out card below giving complete information, circle the ones you want, and send to us. No stamp needed.

Chemical Industries, 522 Fifth Avenue, New York, N. Y. (1-3)

I would like to receive the following booklets or catalogs

A450	A455	A460	E808	E813	E818
A451	A456	E804	E809	E814	E819
A452	A457	E805	E810	E815	E820
A453	A458	E806	E811	E816	
A454	A459	E807	E812	E817	

Name ..... (Position) .....

Company .....

Street .....

City & State .....



# CHEMICAL SPECIALTIES

Turpentine & Rosin Factors, Inc., is using these three Duraglas containers—32, 16 and six ounces—for nationwide distribution of pure gum spirits of turpentine. Bottles are Boston rounds, emerald green and made by the Owens-Illinois Glass Company.

Industrial

Agricultural

Household

# Colloidal Graphite — A Modern Lubricant

By Ralph K. Carleton, *Rhode Island State College*

**Colloidal graphite has made possible the safe operation of machinery at high speeds. Here's the story of how it is produced, how and where utilized.**

**G**RAPHITE, a black crystalline form of carbon, is among the softest substances known. Hence its value for lubricating purposes. It is inert to chemicals and burns only at high temperatures. Even though the amount of artificial graphite is increasing, the mining of graphite is still an important industry. Most of the graphite used in pencils comes from Mexico; other large deposits are located in Siberia, Austria, and Ceylon. Although there are some deposits in the United States, the quality of the graphite and its cost of production make them of minor importance.

Artificial graphite is made by volatilizing carbon in electric furnaces at a temperature of about 4000°C.; upon condensing, it becomes crystalline. Graphite electrodes, crucibles, and other such products are indispensable to many electrical processes. About 25,000 tons of graphite are imported annually by the United States. The Acheson Graphite Corporation of Niagara Falls is the principal producer of artificial graphite, although some is produced as a by-product of the silicon carbide industry.

It was an outgrowth of his work on silicon carbide "Carborundum" that Edward Goodrich Acheson in 1896 invented the first successful process for the commercial manufacture of artificial<sup>1</sup> graphite. He discovered that any form of amorphous carbon, when placed in an electric furnace and subjected to a temperature of approximately 3000°C., was converted into the graphite allotrope. Graphite, so produced, could, dependent upon the raw material employed, be obtained in a state of almost perfect purity.

## Utility of Graphite Surfaces

When artificial graphite is colloidalized, and suspended in liquid carriers, it imparts to the surfaces of innumerable bodies properties of lubricating, conductive, absorptive, reflective and pigmentary value.

### 1. Metals

Graphite films formed on metals, commonly referred to as "dag" colloidal graphite are used primarily for their unctuous and lubricating properties. This performance may be summarized here as follows:

- (1) Colloidal graphite in oil forms a *graphoid* layer on friction surfaces which discourages the sticking and seizure of mechanical parts.
- (2) Graphoid surfaces provide efficient dry lubrication for extended periods in the absence of oil.
- (3) A graphoid surface is more easily wetted than a plain one (i.e., it has a lower interfacial tension with oil) and, being difficult to wipe clean, retards oil film rupture.
- (4) The addition of colloidal graphite to an oil raises its critical temperature<sup>2</sup> from 10°C. to 20°C. (18° to 36°F.).
- (5) Colloidal graphite is inert and, therefore, will not combine chemically with any liquids, solids, or gases with which it may come in contact.
- (6) Graphite remains unaffected at normal temperatures, requiring approximately 600°C. before carbon dioxide results from its combination with oxygen.

- (7) Graphite particles are sufficiently fine to pass through carburetor jets and penetrate any interstices into which their carrier is capable of entering.
- (8) Colloidal graphite in an oil does not induce sludge formation.
- (9) Colloidal graphite within the limits of recommended use (i.e., 0.2% by weight), does not increase the viscosity of an oil.
- (10) Colloidal graphite lubricants effect 40% to 50% less wear of cylinders and piston rings than a plain oil.

Obviously, the use of colloidal graphite in oil includes the entire field of mechanical lubrication: penetrating, upper cylinder, high temperature, assembly and running in, small parts, and general purpose. Likewise colloidal graphite in water, when diluted properly with electrolyte-free and water-miscible carriers, can be fed through mechanical and hydrostatic lubricators to serve as a substitute for oil when the use of the latter is objectionable or not permissible.

Of special significance is the extensive application of colloidal graphite in the war effort. It is used as a lubricant for guns and cartridges; speed-reducer oils; cutting fluids; and parting compounds for glass-working tools, incandescent lamp sockets, bolts, screws, and nuts. Dies, pins, and die blocks of lead-extrusion presses are lubricated to advantage with a 1 to 15 dilution of colloidal graphite in water.

<sup>1</sup> Artificial in the same sense that manufactured ice is artificial.

<sup>2</sup> Critical Temperature—refers to that temperature above which the value of a straight mineral oil as a lubricant diminishes rapidly when operating under a heavy load.

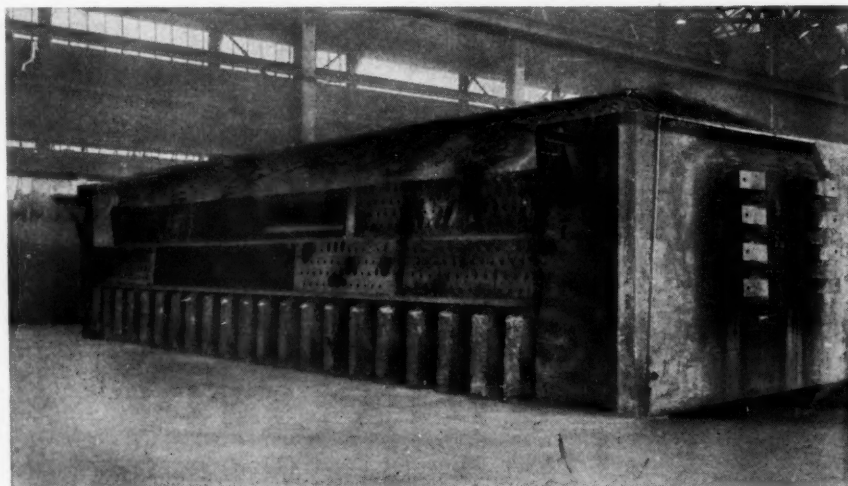
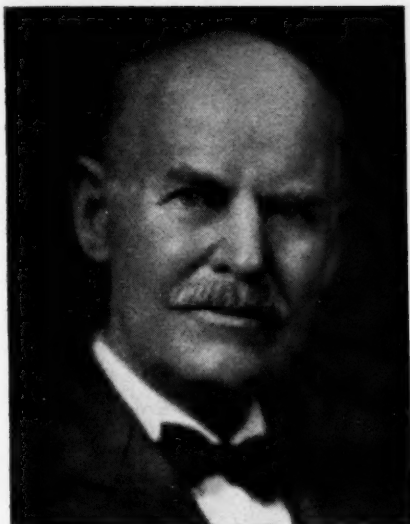


Fig. 1. Furnace for the Production of Graphite by the Acheson Graphite Process

Courtesy of National Carbon Co., Inc.



Edward Goodrich Acheson  
(1856-1931)

Discoverer of "Carborundum"; the first to produce synthetic graphite commercially and the originator of colloidal graphite.

Courtesy of Acheson Colloids Corp.

In each of the foregoing applications colloidal graphite products are applied to metal parts by swabbing, brushing, dipping, or feeding with lubricators, according to requirements. Of these procedures, hot-dipping in solutions of graphite yields the most homogeneous and unctuous coatings. Tenacious deposits even under conditions of alternate heating and cooling, are formed by dipping metals in a solution of one part of colloidal graphite to as much as fifty parts of water. Before immersing small objects, one heats them, in some cases to 350°C., the more desirable temperature being that point where the graphite solution hisses upon contacting the heated part. Metal articles of larger dimensions are first heated and then coated by spray-gun or paint-brush methods.

## 2. Surface Finishes

Cellophane, both plain and moisture-proof can be covered with graphite films. Applied to one surface of these materials, colloidal graphite imparts a decorative gray-black color, which upon being viewed through the cellulose sheets, has a lustrous black finish. Likewise, an unusual finish for plaster of Paris objects may be obtained. Such objects if brushed with two or three coats of dilute "Aquadag" will assume the matte-like appearance of black basalt. One can regulate the black tone by altering the dilution of colloidal graphite and by polishing the highlight areas with a soft cloth.

Tough, pliable, and insoluble graphite films are formed and hardened photochemically with chemical agents. Typical coatings are made from the following formulas:

(A) "Aquadag" .....	20.500 grams
Gelatin .....	0.250
Potassium dichromate .....	0.0025
Distilled water .....	79.2475
(Films formed with this mixture are hardened by exposure to light).	
(B) "Aquadag" .....	44.444 grams
Gelatin .....	13.888
Distilled water .....	53.334
(Films formed with this mixture are hardened by treating with formaldehyde —37% solutions).	
(C) "Aquadag" .....	44.444 grams
Dry Casein .....	13.888
Ammonium hydroxide .....	27.776
Distilled water .....	13.892
(These films like those in B are hardened by treating with formaldehyde).	

## 3. Glass

Colloidal graphite films on glass serve many useful purposes.

In applying graphite to large glass areas, such as the interior walls of evacuated systems, cathode ray tubes and ionization chambers, a combination of funnel or aspirator bottle and air vent tube is employed, Fig. 3. Films of any desired thickness can be prepared in this

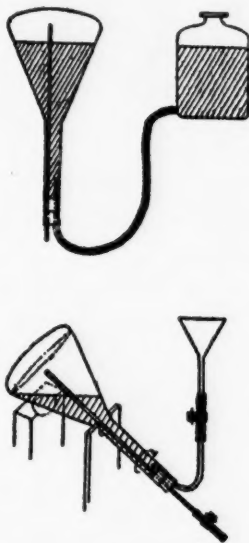


Fig. 3

Aspirator bottle and funnel methods of applying graphite deposits on the interior walls of glass envelopes like cathode ray tubes.

manner, the controlling factors being the graphite content of the solution and the number of coats applied.

Optical wedges, intended for special purposes including a standard in photometric measurements, are made from colloidal graphite dispersed in gelatine solutions and dried upon thin glass plates.

Corona loss is reduced on porcelain and Pyrex insulators of the suspension type by applying a graphite film to the threaded insulator supports. Certain stresses and strains are also decreased materially by the lubricating properties of graphite.

## Disadvantages of Ordinary Lubricants

Because of the very high temperatures which are encountered in many present-day industrial processes the need for suitable lubricants has been greatly em-

phasized. The conventional lubricants cannot meet this need.

Lubricants of this type have usually been either heavy greases or high viscosity oils, the greases having been produced by thickening petroleum bodies with metallic soaps. Such products, however, are unable to withstand the extremely high temperatures which often exist in many industrial operations. Oils, where subjected to severe heat, decompose or distill off, and greases are consumed leaving behind a residue of non-lubricating soap.

Therefore, it is quite obvious that a lubricant which will perform satisfactorily under these severe conditions must possess unusual properties. First, and most important, it must remain wholly unaffected by heat, i.e., resist oxidation. Second, it must retain its lubricating properties where subjected to heavy pressures and, finally, not be removed from the metal surface by the sliding movement of parts to which it is applied. Graphite, produced in the electric furnace, colloidal dispersed in a suitable carrier fluid, adequately meets the requirements.

## Graphite Lubricants Available

The type of fluid carrier which most conveniently assures these results varies with the problem at hand. Wherever petroleum fluids are adapted to conditions, colloidal graphite dispersed in such liquids, mineral spirits, spindle oil, etc., may be employed. Where conditions are such that the lubricant is applied to a cool surface (less than 100°C.) colloidal graphite in water is used with good results.

The dispersions best suited for the majority of high temperature applications are as follows:

- Oil dispersion*, "Oildag" Concentrated (approx. 10% by weight colloidal graphite in petroleum oil). Fig. 4 gives a comparative idea of the particle size of the colloidal graphite used in this and the following lubricants.
- Water dispersion*, "Aquadag" (approx. 22% by weight colloidal graphite in water) for blending with distilled water.
- Mineral spirits dispersion*, "dag" Colloidal Graphite, (in mineral spirits) for blending with petroleum fluids.

The value of graphite as a solid lubricant is of major importance in connection with devices operating at high temperatures, typical of which are: baking and enamelling oven chains, bottle making machines, die casting and forge machines, molding machinery and the like.

For such applications it is customary to use colloidal graphite dispersed in a fairly volatile oil having good penetrating properties. The petroleum carrier serves primarily as a vehicle to convey the graphite to remote parts. When subjected to heat the oil distills off, leaving the graphite as a residue to function as a dry lubricant.

The chief advantage of colloidal-graphitized oils and greases lies primarily in their ability to establish films of adsorbed

graphite upon the friction surfaces of mechanical devices. These graphoid surfaces, as they are termed, act to satisfy the surface energy of the metal or other material to which the lubricant may be applied. Such graphite films are closely bonded to metallic and other bodies by physio-chemical forces and produce a combination similar to an amalgam.

#### Advantages of Colloidal Graphite Lubricants

Moreover, graphoid surfaces possess a very low coefficient of friction. Because of the low interfacial tension existing between oil and graphite, oil wets graphoid surfaces more freely than those of plain metal. This factor contributes to the prevention of oil film rupture. A most important aspect of this situation is that these surfaces also retain in a large measure the properties of the graphite from which they are formed and consequently are able to serve in an emergency as dry lubricants.

Furthermore, it should be noted that the value of a plain mineral oil as a lubricant under heavy loads diminishes rapidly above a certain critical temperature. It has been found that the addition of a small percentage of colloidal graphite raises this temperature 10° to 20°C.

Oils charged with colloidal graphite may be fed through existing lubricators

without the necessity of their modification.

Colloidal graphite improves the lubricating qualities of greases just as it increases the efficiency of plain oils—by forming on friction parts tenaciously adsorbed graphoid surfaces.

Colloidal-graphited greases, in addition to providing improved lubrication, have other advantages. When a bearing is lubricated with grease, a certain amount of lubricant is consumed. With greases containing ordinary pulverized graphite, the latter is not always consumed at the same rate as the medium in which it is applied, with the result that the graphite tends to accumulate. Keeping in mind, the cohesive tendency of ordinary graphite, the danger of this accumulation and subsequent hardening will easily be recognized. Greases containing colloidal graphite are quite free from this tendency.

Furthermore, the particles of graphite in the colloidal state, because of their small mass, are unaffected by the centrifugal force created in high-speed wheel bearings. Colloidal graphite, therefore, escapes separation from its carrier—a common fault of greases compounded with powdered graphite.

#### Summary

It can be readily seen from the foregoing that colloidal graphite has made possible the safe operation of machinery

at high speeds. Were it not for graphite lubricants in their various forms, our present war effort would be seriously handicapped. The demand for more and more supplies of war requires that both man and machines work at top speed. The limit of speed of operation has probably not been reached yet so far as a safe lubricant is concerned. And this is made possible through colloidal graphite.

#### Literature Cited

- Acheson Colloids Corporation, Technical Bulletins Nos. 10.1; 92.13; 130.14; 270.60.
- Brodie, B. C., Roy. Soc. London, Phil. Trans., 149, 249-59 (1859).
- Elder, Albert L., Textbook of Chemistry, 670-672, (1941) Harper & Brothers, New York, N. Y.
- Finch, G. I., Quarrell, A. G., and Wilman, H., Trans. Faraday Soc., 31, 1051-80, (1935).
- Finch, G. I. and Whitmore, E. J., Engineering 146, 91, (1938).
- Finch, G. I. and Quarrell, A. G., Nature, 137, 516-519 (1936).
- Fink, C. G., and Prince, J. D., Trans. Am. Electrochem. Soc. 54, 315 (1928).
- Moissan, H., Compt. rend., 116, 608-11, (1893).
- Porter, B. H., Illuminating Engineering 46, 499-502, (1941).
- Porter, B. H., Rev. Sci. Instruments, 7, 101-106, (1936).
- Szymanowitz, Raymond, J. Chem. Ed. 16, 413-422, (1939).
- Szymanowitz, Raymond, J. Chem. Ed. 3, 909-914, (1925).
- Szymanowitz, Raymond, J. Chem. Ed. 18, 331-332, (1941).
- Szymanowitz, Raymond, U. S. Patent No. 2,047,087 assigned to Acheson Colloids Corporation.

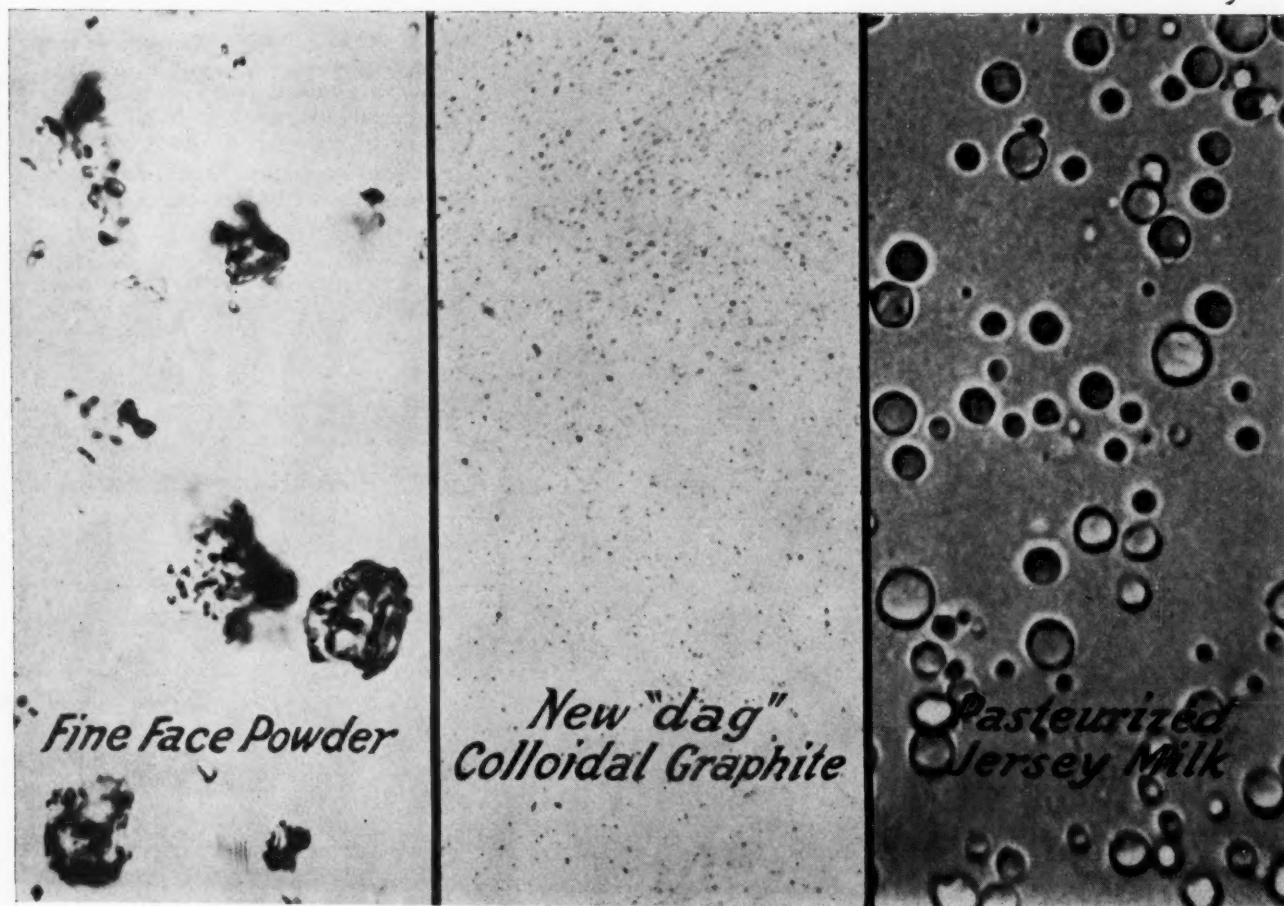
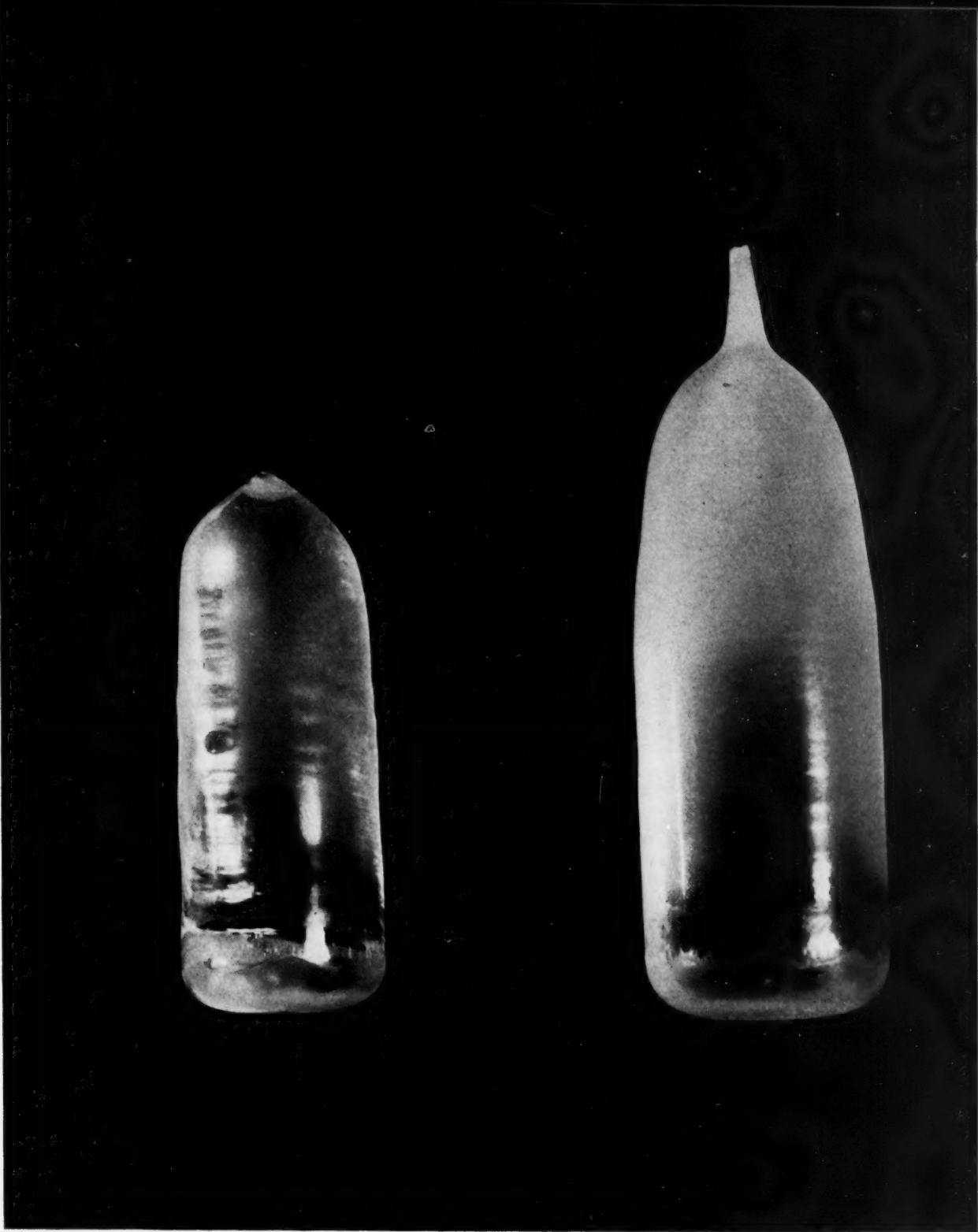


Fig. 4. Photomicrograph showing comparative particle size of colloidal graphite, face powder, and pasteurized milk.



## NEW CHEMICALS FOR INDUSTRY

These are American-made sapphire boules. One on the left is a 200-carat boule now in regular commercial production. Right is one of the largest yet made by Linde Air Products Co. It weighs about 350 carats.

Digest of Chemical Developments in Converting and Processing Fields

# NEW PRODUCTS AND PROCESSES

By James M. Crowe

**P**OLYVINYL resins, now so vital as rubber substitutes that they have been placed under mandatory allocation by the War Production Board, have "arrived" in the plastics world, according to a report by the Du Pont Co.

The Baruch Committee credited the vinyls as a substitute saving the equivalent of 22,000 tons of crude rubber a year. The WPB placed them under allocation because, despite great increases in production capacity, there are not enough to satisfy all military needs.

War-time applications for polyvinyl compounds are increasing faster than they can be made. Polyvinyl butyral—once used only as the plastic interlayer for laminated safety glass in automobiles—now coats a fabric from which light, long-wearing raincoats are made for soldiers. Polyvinyl alcohol is molded into oil-resistant tubing and gaskets for airplanes and trucks. Polyvinyl acetate is used instead of rubber latex in midsoles for shoes. Polyvinyl chloride is used in making degaussing cables to protect precious ships against certain types of mines.

The prominence of these plastics in the war economy climaxes an engrossing chapter in the history of industrial chemistry, one which started in Europe about the turn of the century. The continental laboratories discovered these compounds and pursued research off and on for 20 years without developing any plastic of commercial value.

Interest shifted to Canadian and American laboratories in the middle '20s, and the vinyls were investigated as finishes. In probing various formulas for finishes, chemists found they had interesting plastic properties, and several had some of the characteristics of crude rubber—toughness, flexibility, and good adhesive qualities. Research toward vinyls as plastics was intensified but little of commercial value materialized immediately.

Years of research and substantial sums were expended before, in 1938, the first big use was found—the plastic interlayer for laminated safety glass. Several companies introduced polyvinyl butyral sheets that year. Broken glass adhered better to this flexible plastic than to ones previously used, and it did not discolor with age.

Meanwhile, other polyvinyl compounds began to widen their scope. Suspenders, belts and other items employing a polymerized combination of vinyl acetate and

vinyl chloride found favor. Tubing, gloves and aprons of highly oil-resistant polyvinyl alcohol were welcomed in factories. Tubing was used as the inner lining of gasoline hose because of its oil resistance. Polyvinyl acetate was accepted as a superior adhesive and paper coating. Yet aside from polyvinyl butyral, the vinyls had not "arrived" spectacularly. The quantity produced was comparatively small, and large outlets had not been exploited.

Then, almost overnight, rubber became one of the most critical materials in America. Industry, the armed forces, scientists sought substitutes. Plastics, wood, metals, fibers, anything to replace precious pounds of rubber, were tried. Polyvinyl resins proved very useful, readily replacing rubber in many important war items.

Some polyvinyl butyral still was needed to make safety glass for transparent sections of airplanes and for windows of tanks, trucks and other military equipment. There was excess capacity when automobile production stopped, but all this and a great deal more soon were needed.

Not only raincoats, but bags for transporting drinking water to thirsty soldiers, hospital sheeting for military and civilian use, life rafts and belts for the navy and merchant marine, food bags, and waterproof, oil-resistant suits for seamen are made from a butyral coated fabric, rather than from rubber.

This plastic saves one and three-quarter pounds of crude rubber in each raincoat. Though developed as a substitute, chemists feel sure it will replace rubber for coating some fabrics even when rubber again is plentiful.

Polyvinyl butyral has other war jobs. Various formulations replace rubber in extruded tubing, in clamps to prevent vibration of fuel lines on airplanes, and in confidential military applications. It is finding use as an adhesive replacing rubber latex, particularly in the shoe and paper industries.

Other military applications include shatterproofing material for windows in war factories and army barracks; sound dampening material for pick-up microphones; adhesives for plywood. A variety of new civilian goods already have been developed in laboratories.

Oil resistant tubing and gaskets for airplanes and trucks are important uses of polyvinyl alcohol. It has others. Tough, transparent sheets may be made into food packages. It is used to grease-proof food containers for soldiers and civilians. It "sizes" military textiles. It replaces stra-

tegic metals when used in the manufacture of printing plates. It also has a number of undisclosed military applications.

Polyvinyl acetate, polyvinyl chloride and various formulations of the two have a long list of war-time applications. Polyvinyl acetate in emulsion, for example, is a rubber latex substitute, replacing this scarce material in midsoles for shoes. It also is used in the fabrication of gas-proof fabrics and as an adhesive.

## Structural Plastic

Plastic compositions which can replace steel or other metals in many uses may now be manufactured by incorporating with various cellulosic fibers a resin powder known as Vinsol, extracted by Hercules Powder Company from the Southern pine tree, according to an announcement by The Patent and Licensing Corporation.

This new structural resin plastic is an addition to the growing family of resin-treated laminated paper products. It is a thermoplastic, fibrous resin composition, hard, dense, stiff but with reasonable toughness. It is described as sturdy but lightweight, and has low water adsorption.

It is said to be a possible replacement for steel or other scarce metals for some parts in containers for food shipments; for automobile license plates, in trucks, street cars and busses; conduits in certain uses; cement-filled Lally columns supporting light loads. One of its best characteristics is its high resistance to petroleum products.

Fibers used in the production process include newsprint, clean cotton rags, sulfite, sulfate, and the like, in straight or mixed furnish. Such fibers are non-critical. The Vinsol resin is currently available without priorities.

Production of the fiber sheets requires use of existing conventional paper-making machinery, without special installations. Thin sheets for laminating may be made by continuous process on cylinder of four-drinier paper machines. Thicker sheets for laminating or for homogeneous pressing can be made on wet machines or insulation board machines. So far, the source of supply has been, chiefly, The Flintkote Company, New York, of whom The Patent and Licensing Corporation is a subsidiary.

Curing of the raw stock requires primarily hydraulic steam presses which operate at 275-350°F., at 800-1500 lbs. per sq. in., and which have rapid cooling means. Special furnishes may be provided which will permit press curing at as low as 300 lbs. per sq. in. The curing cycle is from four to six minutes. Multiple platen production is regarded as thoroughly feasible because seconds or rejects are unusually low in percentage.

Special compression presses and special compression molds or dies are needed for specific molded shapes, but multiple dies can be worked out for the simpler shapes, such as corrugated sheets or fluorescent

lighting reflectors.

Following is a table of characteristics of one of these plastic compositions—Fedralite "C" stock:

#### Characteristics of Fedralite "C" Stock

Compression molding temperature	275-350° F.
Compression molding pressure	800-1500 psi
Compression ratio	2.0-2.5
Specific gravity	1.30-1.40
Specific volume, cu. in. per lb.	19.0-20.0
Tensile strength, psi	7,000-9,000
Modulus of elasticity	1,370,000
Compressive strength, psi	31,000
Flexural strength, psi	12,000-17,000
Resistance to heat, °F. continuous	180
Softening point—°F.	Begins 225°
Dielectric strength, short time VPM 1/8"	350
Water absorption 24 hrs.	2-4%
Burning rate	Rapid
Effect of age	No change indoors
Effect of sunlight	Surface and edge resistance reduced
Effect of weak acids	Very slight
Effect of weak alkalis	Decomposes
Effect of strong alkalis	Decomposes
Effect of organic solvents	None on hydrocarbons, others may dissolve
Machining quality	Fair to good
Clarity	Opaque
Color possibilities	Limited, except with face sheets
Nails	Readily
Saws	Like Bakelite
Punches	" "
Drills	" "
Machines (Vonnegut, Onsrut, etc.)	" "
Paintability	O.K. with Dulux or equivalent force-dry paints, or normal paints over shellac primer

#### New Adhesive

The research laboratories of Paisley Products, Inc. have developed a new vegetable base adhesive designed for a diversified range of applications in most industries.

In appearance, the new product, Vegimal is a viscous light tan colored liquid. It is freely miscible with water and weighs ten lbs. per gallon. It is made by conversion of domestic starches with plasticizing chemicals added to produce various drying or setting speeds. At room temperature, undiluted, it is difficult to spread; heated to approximately 125°F., it liquifies and spreads to a gelatinous cohesive film. The film is instantly "tacky" and remains so for considerable periods of time before drying, depending on the formulation. Non-warping qualities, shrinkage of film, and duration of "tacky" state can be adjusted by amount of water dilution, thickness of film applied and temperature of solution.

#### Surface Active Agents

A new series of emulsifiers, detergents and wetting agents has been announced by the Industrial Chemicals Department of Atlas Powder Co. According to a company statement, "these versatile surface active agents are being supplied now in sufficient quantity to meet the unusual demands of the present, and are available in experimental lots for use in the new combinations of oils and water that are being worked out for the future."

Chemically the Spans and Tweens, as the new products are called, are two related series of long chain fatty acid partial esters and polyalkylene hexitol anhydride esters. They possess a multi-

plicity of functional groups, which permits a large number of modifications and combinations to meet special conditions.

The Spans constitute a series of technical long chain fatty acid partial esters of hexitol anhydrides. The hexitol anhydrides include sorbitans and sorbides, mannitans and mannides.

The Tweens comprise a series of polyalkylene derivatives of hexitol anhydride partial long chain fatty acid esters.

The chemical starting materials for these derivatives are the hexahydric alcohols, mannitol and sorbitol. Given below are configurational formulas for the components of a typical Span, whose formation involves anhydridization to hexitans and hexides and their esterification.

The free hydroxyls and the ester group are thus attached either directly to the anhydro rings, or to side chains. The asymmetric character of the hexitols, particularly sorbitol, makes possible the formation of several isomeric anhydrides, from which ester derivatives homogeneous as to degree of esterification but otherwise sufficiently different to confer on the mixture properties unobtainable with simple derivatives, are synthesized.

In the Tweens, the free hydroxyls of the Spans are modified by reaction with alkylene oxide. In both Spans and Tweens the hydrophile character is supplied by free hydroxyl and by ether oxygen—the Tweens having a higher ratio of ether oxygen to hydroxyl than the Spans.

The Spans and Tweens are non-electrolytes. They are neither sulfates nor sulfonated products, and are essentially free of soap, excess free fatty acids and inorganic salts. Those listed are designated

in accordance with their principal components.

#### Paper Processing Aid

Use of Nopco 2211 as a processing material during the cooking of rags and raw cotton fibres in paper making has resulted in manufacture of a finer quality finished paper, according to the Paper Specialties Division of National Oil Products Company.

A recent company statement says:

"Actual mill runs with Nopco 2211 in paper mills where rags and raw cotton fibres are cooked to remove impurities that would be detrimental to the appearance and quality of the finished paper, have been most successful.

"In both rotary and vertical kiers, use of the processing material has aided materially in wetting the raw fibre during the loading of the cooking chamber, and in removing naturally occurring impurities such as waxes, pectins, stem particles and oils which may have been used in textile processes. In addition, it has lessened materially the reddish stain sometimes present after cooking."

In many types of rags and in raw cotton, waxes that occur naturally are for the most part inert with regard to caustic liquors alone. They will resist removal successfully unless some portion of the cooking liquor has the power to penetrate these wax particles, loosen them and emulsify or disperse them so that they can be easily removed with the spent liquor.

According to the company use of Nopco 2211 has resulted in substantially reducing the cooking time.

More important from a war conservation standpoint, however, is the substantial reduction in the amount of chlorine needed during the process.

It is said that in test mill runs, where Nopco 2211 has been used, cleaner stock has been delivered to the bleaching cells, clogging of washer screens has been eliminated, and the number of washes has been reduced. In spite of this, fibre "brightness" has been maintained and black specks in the finished wet lap have been eliminated.

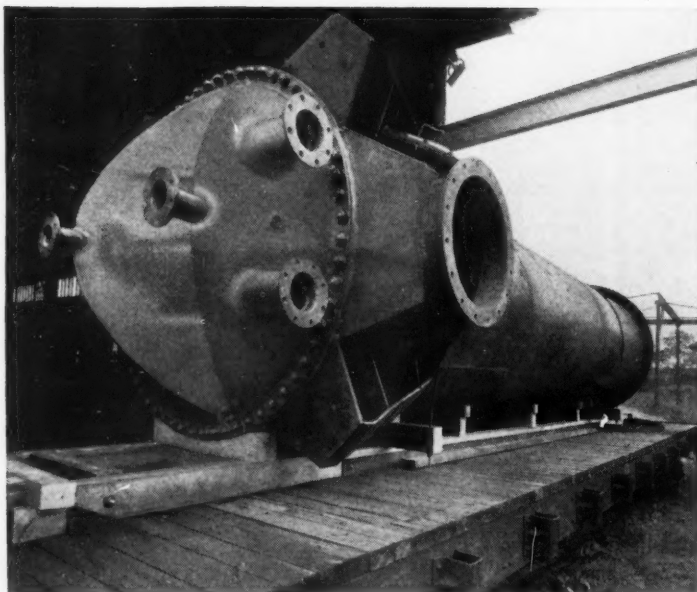
#### Wax Substitute

According to Stroock & Wittenberg one of their waxes, S&W Fused Congo No. 5, which has been manufactured for a number of years, is now finding application in the replacement of carnauba wax in no-rub polishes.

S&W Fused Congo No. 5 is a processed type, and requires no further processing on the part of the consumer. It is available in quantities, without priorities. A company statement, recently issued, says that replacements of wax in varying amounts, as high as eighty per cent, are possible while still retaining gloss and other necessary properties in the polish.

# Custom-Built Equipment

## FOR THE CHEMICAL INDUSTRY



Steel and Naval Bronze Condenser. Tube heads and bonnet of non-ferrous metals. Steel shell. Weight: 42,000 pounds. Constructed by Patterson-Kelley for the chemical and process industries.

For years Patterson-Kelley have been building durable equipment for the chemical and process industries. Size is no problem. We are equipped by experience and training to fit the completed unit to the particular job it may be called upon to do—regardless of output requirements or the unusual nature of the job. Result—chemical and process equipment that is *custom-built* to meet the most exacting specifications of your operating conditions.

Patterson-Kelley kettles, mixers, coolers, autoclaves, cookers, dehydrators and heat transfer units may be fabricated from a wide range of metals. Precision engineering and highest quality materials assure you of equipment that gives years of dependable, trouble-free service. Today when strategic shortages of metals demand machinery that can "stand the gaff" under difficult operating conditions, it pays to bring your equipment problems to Patterson-Kelley.

Our engineers will be glad to discuss your equipment needs with you—at no obligation to you. In the meantime, get your free copy of the Patterson-Kelley Chemical and Process Equipment Catalog. Just drop us a line—and we'll mail your free copy at once.

Carload and less than carload units



A group of 10 small Patterson-Kelley Exchangers designed for the chemical industry. Constructed of Monel Metal throughout.

PATTERSON-KELLEY FOR DEPENDABLE, ECONOMICAL SERVICE

EST.

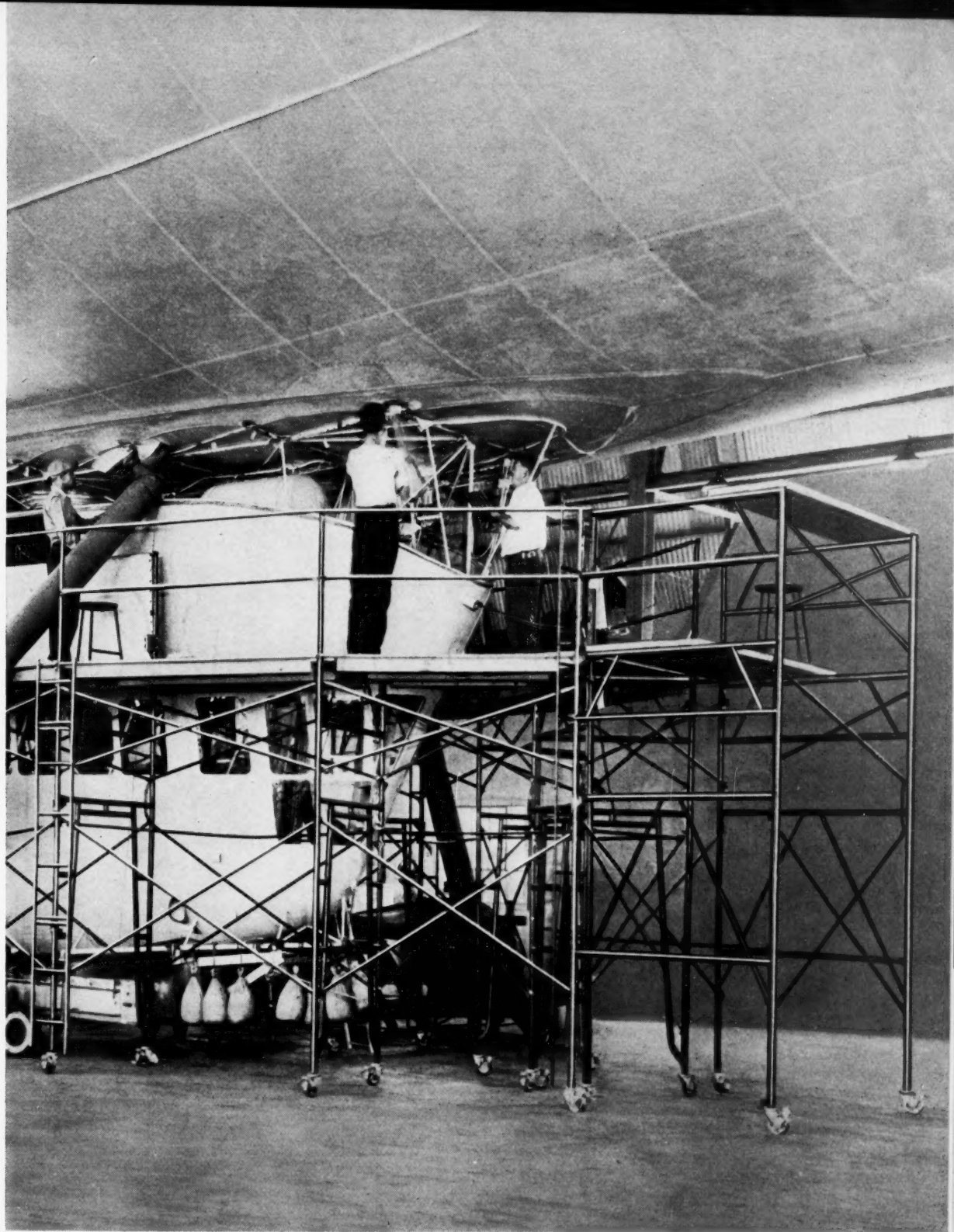
1880



### THE *Patterson-Kelley* CO., INC.

112 WARREN ST., EAST STROUDSBURG, PA.

MANUFACTURERS FOR THE CHEMICAL AND PROCESS INDUSTRIES



## PLANT OPERATION AND MANAGEMENT

This time-saving assembly method should be of interest to chemical plants. In this case it's being used for attaching gondola to the bag of Goodyear blimps. Designed by Safway Steel Products Inc., it is easy to handle, light in weight, rigid and strong.

Digest of New Methods and Equipment for Chemical Makers



Filling anhydrous ammonia tank car.

## The Applications and Handling of LIQUID SYNTHETIC ANHYDROUS AMMONIA

By R. J. Quinn, Mathieson Alkali Works

Another in our series of helpful articles on handling chemicals, this is of particular interest at this time. Previous issues covered chlorine & caustic.

**T**HE production of synthetic ammonia on a commercial scale, which began in this country at the Niagara Falls plant of the Mathieson Alkali Works, Inc., in 1923, was one of the revolutionary developments in the American chemical industry.

Prior to that time, ammonia was obtained only from by-product coke ovens, and the cost of producing the liquefied anhydrous gas was around twenty-five cents a pound. But this cost was cut more than half by the synthetic process, and, in addition, a much purer product was turned out.

This combination of advantages brought about a general adoption of the synthetic process, and in our last normal year, 1940, practically all of the ammonia produced in this country, both anhydrous and aqua, was made synthetically.

*The Synthetic Ammonia Process*—There are several different methods of synthesizing ammonia which differ in detail but are all based on the same principle. A mixture of one part of nitrogen and three parts of hydrogen, by volume, is brought into contact with a suitable catalyst, such as pure iron in the form of porous granules, at a temperature of about 500° C. and under a pressure that varies from 3,000 to 13,500 pounds per square inch, according to the method employed. Under these conditions the two elements unite to form gaseous  $\text{NH}_3$ , which can be readily liquefied by cooling it while the pressure is still applied.

When highly purified nitrogen and hydrogen are used for the synthesis the purest of all commercial chemicals can be obtained. A standard refrigeration grade consists of 99.95%  $\text{NH}_3$  and contains none of the aromatic amines, organic acids, and sulfides that are the normal contaminants of by-product ammonia.

### Applications

The principal application of liquid anhydrous ammonia has always been refrigeration, but it is being used in constantly increasing quantities for the formation of chloramines in the purification of drinking and swimming-pool water, for protecting petroleum refining equipment from corrosion, and for the manufacture of various chemical products including aqua am-

monia, nitrogenous fertilizers, and, of special importance these days, nitrates, plastics, pharmaceuticals, smokeless powder, T.N.T., and other high explosives.

*Case Hardening Steel with Ammonia*—Recently, a number of new applications have been found for liquid anhydrous ammonia in the metal treatment field. Among these are three processes for case hardening steel.

Alloy-steel parts are being *nitrided* by heating them in an atmosphere of ammonia at temperatures ranging from 850° to 1200° F. and for times ranging from twenty to ninety hours, or more, according to the depth of case and surface hardness desired. During the treatment, a part of the ammonia dissociates, and the nascent nitrogen forms the case by combining with the iron to form layers of iron nitrides.

It is claimed that uniform and easily duplicated results can be obtained by means of this process and that the finished work is clean, unoxidized, and unaltered in form and dimensions, so that no further machining or other treatment is required.

In another process, steel is *dry cyanided* by heating it at from 1350° to 1550° F. in an atmosphere consisting of a mixture of ammonia and carburizing gases. Both nitrides and carbides are formed by this process, and their relative amounts can be varied by varying the temperature and the composition of the mixture of gases.

*Hydriding* with the use of ammonia is a fairly recent process for bright-hardening.

ing all types of steel parts. In this process, the parts are heated in an atmosphere of carbon monoxide obtained by blowing air through a bed of hot charcoal. Small quantities of ammonia are added to increase the hydrogen content of the atmosphere, and some benzol, as well, to reduce any carbon dioxide that may be present. After treatment, the case-hardened parts are quenched in the non-oxidizing atmosphere and come out with a bright finish.

This same process is also used for the bright annealing of non-ferrous metals, especially copper.

**Metallurgical Uses of Dissociated Ammonia**—For certain metallurgical applications, ammonia is "cracked" into its component elements (i.e., 25% nitrogen and 75% hydrogen, by volume) before it is used. Actually, either nitrogen or hydrogen, as the case may be, could be used in these applications instead of dissociated ammonia, but the latter is commonly employed for the following reasons:

1. Synthetic ammonia that produces gases of the highest purity can be obtained.
2. No moisture is present in the dissociated gases.
3. The presence of the second gas is usually unobjectionable, but, if necessary, the hydrogen can be removed by burning it and condensing the water formed.
4. One 100-pound cylinder of liquid ammonia yields 4,500 cubic feet of mixed gases, or 3,400 cubic feet of pure hydrogen, which is the amount supplied by seventeen standard 200-cubic-foot cylinders of compressed hydrogen.

Ammonia is dissociated in special cracking equipment, where it is subjected to the action of a suitable catalyst at a high temperature and under normal pressure. Under efficient operating conditions, the dissociation of the ammonia is 99.5% complete.

In a new *nitriding process* for surface hardening stainless steel, the furnace is first purged of air with dissociated ammonia. Then ammonia, as such, is admitted and the temperature is raised to from 1000° to 1100° F. The steel absorbs nitrogen, and the released hydrogen passes out of the muffle with the undecomposed ammonia.

Dissociated ammonia is also used for the *bright annealing* of both ferrous and non-ferrous metals, including tungsten and molybdenum. The mixture of hydrogen and nitrogen has proved to be well suited for removing scale, preventing discoloration, and insuring work with bright untarnished surfaces. Similarly, in *bright copper brazing*, the brazing furnace is filled with dissociated ammonia, which

protects the work from oxidation.

In the following *welding processes*, dissociated ammonia is being substituted for hydrogen, which has heretofore been regularly used:

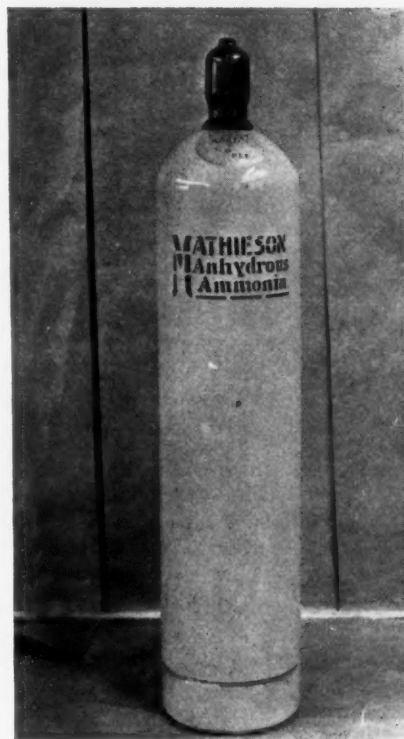
1. The oxy-hydrogen process, used in the autogenous welding of lead and other welding work.
2. The atomic-hydrogen arc process, in which a stream of hydrogen is blown through an electric arc formed between tungsten electrodes and furnishes an extremely hot flame that is suitable for welding alloy steels and other special purposes.
3. The copper-hydrogen process, in which copper wire or paste, applied at the joints to be united, melts and runs into the seams when the work is heated to a temperature of 2100° F. in an atmosphere of hydrogen.

**The Present Availability of Liquid Ammonia**—Because ammonia is used in so many processes essential to our war effort, all forms of it are under 100% Government control. Though additional synthetic ammonia plants are being built, it will doubtless be impossible to obtain liquid ammonia for all desired purposes while the war lasts.

#### Liquid Ammonia Containers

For very large users, liquid anhydrous ammonia is shipped in tank cars holding 50,000 pounds net, but, in most cases, it is supplied in cylinders, of which there are two types.

Tube-type cylinders are available in three sizes, containing 50, 100, and 150 pounds of ammonia respectively. In this type, the valve is mounted in one of the concave ends and is protected by a bonnet when the cylinder is not in use. An internal dipper pipe attached to the valve permits ammonia gas to be withdrawn with the cylinder in one position, and liquid ammonia with the cylinder in another position.



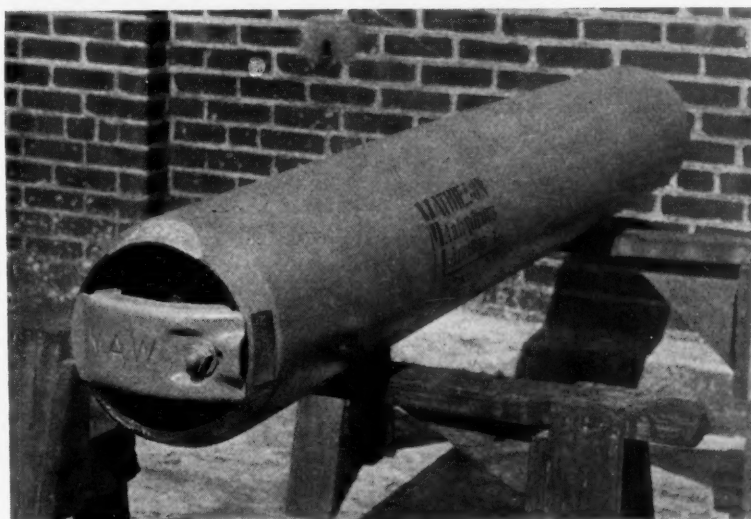
Anhydrous ammonia cylinder.

Bottle-type cylinders are supplied in a 100-pound size only. The valve is located at the top of the cylinder and is protected by a cap. Ammonia gas is withdrawn from a bottle-type cylinder when it is standing upright, and liquid ammonia when it is laid on its side with the dipper pipe pointing downward.

The pressure within a cylinder containing liquid ammonia varies with the temperature, as shown by the following table:

Liquid-Ammonia Cylinder Pressures

Temp ° F.	Lbs. p. s. i. (gauge)
-28	0
32	48
70	114
80	140
95	180
120	270
140	365



Tube-type (standard) anhydrous ammonia cylinder.

It is evident that ammonia gas cannot be withdrawn from a cylinder having a temperature of  $-28^{\circ}\text{F}$ . and that excessive pressures are developed at high temperatures. All ammonia cylinders are tested to withstand hydraulic pressures of 700 pounds per square inch, but cylinder temperatures should never be permitted to exceed  $110^{\circ}\text{F}$ .

#### Surface Area Factor

Another factor that determines the amount of ammonia gas that can be withdrawn from a cylinder in a given time is the surface area of the liquid from which the gas is being given off. Thus, a 100-pound bottle-type cylinder, standing upright, will discharge approximately ten pounds of ammonia gas in twenty-four hours at  $70^{\circ}\text{F}$ ., whereas a 100-pound tube-type cylinder, lying on its side, will discharge from twenty-four to thirty-six pounds under the same conditions.

**Handling Ammonia Cylinders**—Ammonia cylinders should be stored in a cool, dry location and should never be placed near radiators, steam pipes, or other sources of heat. As ammonia gas is lighter than air, the storage room should have some means of providing ventilation, preferably an exhaust fan in, or close to, the ceiling.

Cylinders should be handled carefully and should never be dropped. Valve caps, bonnets, and plugs should be kept in place until the cylinders are used. Bottle-type cylinders should never be lifted by passing a rope or chain under the valve cap, as this may break or strain the valve.

Bottle-type cylinders should be stored upright; tube-type cylinders, on their sides.

Cylinders from which ammonia gas is to be withdrawn should be stored in the room where they will be used at least twenty-four hours in advance, to attain the room temperature. If the cylinder is too cool, the discharge will be unnecessarily slow; if the cylinder is too warm, some of the gas may be liquefied in the cooler pipe-line into which it is fed.

#### Open Slowly

The cylinder valve should be opened slowly, using only the special wrench provided for that purpose. The valve should be closed as soon as the cylinder is empty, which is indicated by the sudden frosting or cooling of the cylinder beneath the dipper pipe. Water or other foreign matter should never be allowed to get into cylinders or ammonia lines.

Empty cylinders should be returned immediately, as there is a serious shortage of these containers due to wartime conditions.

The few consumers interested in using liquid anhydrous ammonia in tank cars will be confronted with special problems in the storage and handling of this chem-

ical. In most cases, a storage tank will be required, since the usual rate of consumption will not permit the retention of the tank car for the time necessary to discharge its contents. A pressure storage tank, equipped with suitable safety valves, insulation, and temperature control, can be installed at moderate cost, however.

The transfer of the liquid ammonia from the car to the storage tank requires auxiliary piping and valves, and a small ice-machine compressor can be utilized to advantage in providing rapid and complete transfer of the ammonia to the storage tank. Such installation cannot be standardized, due to the different conditions for various services, but the problems have been satisfactorily solved in numerous cases. The ammonia manufacturer will be glad to provide engineering assistance in this connection.

#### Piping and Valves for Handling Ammonia

Dry ammonia does not attack the common metals, but moist ammonia quickly corrodes copper, brass, bronze, aluminum, and most of the other metals except iron and steel. Hence, all equipment used for handling gaseous or liquid ammonia should be made of iron or steel.

Piping should be of the extra-heavy, rigid steel type, or, in the case of short connections, of flexible steel.

Screwed fittings may be used on temporary equipment, but flange or tongue-and-groove fittings, or ground joints, should be used on all permanent installations. Screwed fittings should be made up with litharge and glycerine cement. With flange fittings, lead or asbestos-composition gaskets should be used.

Valves should be of the all-steel type, especially designed for ammonia handling.

#### Ammonia Leaks

Leaking ammonia generally indicates its presence by its characteristic odor. The exact location of the leak can be found by exploring suspected areas with any of the following indicators: (1) an open bottle of hydrochloric acid, which will give off white fumes in contact with ammonia; (2) a burning sulfur taper, which will give off a dense white smoke; or (3) moist phenolphthalein paper, which will turn red.

Only an authorized person should attempt to locate or stop an ammonia leak. All others should leave the affected area immediately until conditions have been rectified.

When the seriousness of the leak is unknown, a suitable type of gas-mask should be worn, though a wet handkerchief or cloth held over the mouth and nose will provide some temporary protection.

A leak around the valve stem of a cylinder can usually be corrected by tightening the packing-gland nut. In the case of a serious leak, the cylinder should be removed from the building and its contents allowed to discharge into the atmosphere, if this can be done harmlessly. When this procedure is not possible, the escaping ammonia should be absorbed in water. Leaking cylinders should be so placed that ammonia gas, and not the liquid, escapes.

If liquid ammonia has been released, it should be flooded with a large volume of water from a hose to control the evolution of gas. Acid should never be used for neutralizing the ammonia, as the heat of the reaction may increase the fumes.

#### Personal Protection

Breathing air containing small quantities of ammonia is not harmful, but relatively low concentrations irritate the mucous membranes of the eyes, nose, and throat, and any portions of the skin that are moist with perspiration. Breathing air containing concentrations greater than 5,000 p. p. m. may prove fatal as the result of the spasmodic closing, or the inflammation, of the larynx.

Liquid ammonia injures the skin by freezing the tissue and subjecting it to caustic action, causing burns resembling thermal burns.

Aqua ammonia in solutions stronger than 2% has an intensely irritating action on the skin.

Wherever ammonia is used, suitable gas-masks, stored where the gas cannot reach them, should always be available, and all persons who may have occasion to employ them should be trained in their use.

#### First-Aid Rules

**First-Aid Rules**—1. Remove the affected person to the open air and call a physician immediately. Keep patient quiet and warm, and urge him to drink large quantities of water or milk.

2. If patient is unconscious, apply the prone-pressure method of artificial respiration.

3. Rinse out throat and nose thoroughly with water, and follow with diluted vinegar or boric acid solution.

4. Hold open eyelids, and pour, first, water, and then, 2% boric acid solution over the eyeballs. Follow with two drops of liquid petrolatum in each eye.

5. Remove any ammonia-soaked clothing. Rinse affected skin thoroughly with water and swab with a solution of picric acid or Carron Oil. Tannic acid, as supplied for first-aid use, is also effective for use on ammonia burns.

*In case of fire involving ammonia containers, remove them, if possible, and, in any case, notify the firemen as to their location.*

# PLANT OPERATIONS NOTEBOOK

By W. F. Schaphorst

## Stop Plant Noises

Head-splitting noises are often transmitted through metal piping—water hammer noises, mechanics' blows, vibration noises, hissing sounds, etc.—and yet but little is ever done about it except, once in a while to cover the piping. That helps, true enough, but the noises are merely "wrapped up," not eliminated. Metals and liquids are better transmitters of sounds than are air and other gases.

This question therefore naturally suggests itself: "Why not stop metal pipe noises by inserting isolated joints at occasional intervals?" It can be done by following the same method that is so successfully employed in isolating machinery vibration. This writer recently put the question to concerns who are in the vibration isolation business and he received favorable replies. It was suggested that screwed flanges of ample dimensions be used with broad and thick cork gaskets. Cork is an excellent material for vibration isolation. The bolts, too, should be cork isolated at each end and should be completely surrounded by isolating materials so that there will be no metal-to-metal contact in the joint whatever. Such a joint should prove to be leakless under high pressures and temperatures, and it should effectively stop sound waves through the metal piping. Canvas and rubber joints are now successfully used on low pressure ventilating ducts for eliminating metal duct noises. The above method would eliminate noises from high pressure piping, so why not do it? It is entirely feasible and "vibration experts" agree with the writer. Joints of this type will doubtless make their appearance presently.

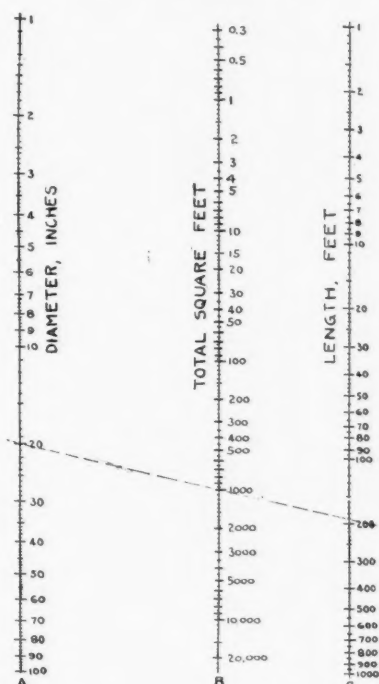
## Areas of Cylinders

Here is a handy chart for computing the areas of cylinders.

For example, the dotted line drawn across the chart shows that if the diameter of the cylinder, pipe, tube, tank, or what not, is 20 inches, column A, and the length is 191 feet, column C, the total area is 1000 square feet, column B.

The chart covers a wide range—from 1 to 100 inches in diameter and from 1 to 1000 ft. length. But it can be applied to any diameter or length, as follows: Let us suppose that you want to build a vertical tank of any material, 200 inches in

diameter and 191 ft. high. What will be the area? Those figures have been chosen purposely to show that the same dotted line already drawn across this chart can be used to solve the problem. The answer will be 10,000 sq. ft. instead of 1000 sq. ft. for reasons that are obvious.

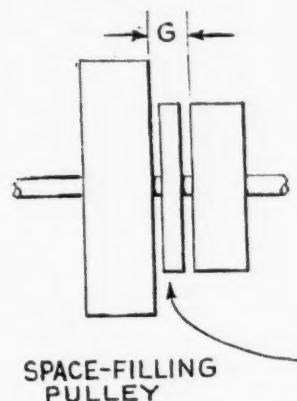


In other words, if you add a cipher to the figures in column A you must also add a cipher to the answer in column B. If you add 2 ciphers in column A you also add 2 ciphers in B. And so on. The same is true of column C. To make sure that everything is understood let us add 2 ciphers to the 20 in column A, making the diameter 2,000 inches. And let us add 2 ciphers to the 191 in C making the height 19,100 feet. The number of square feet will then be 10,000,000 because we must add a total of 4 ciphers to the figure in column B.

Note, please, that the tank just computed would be rather gigantic—nearly 4 miles high, and about 165 feet in diameter. It has been included here only to demonstrate that the chart really has no limit of application. It will be found handy for estimating and for checking one's "hand figuring" should it be decided that utmost accuracy is wanted.

## Safety Pulley

If the space "G" between two pulleys is less than 1.5 times the width of the widest adjacent belt, the situation may be dangerous. In the event that the belt runs off its pulley, it is likely to get caught between the pulleys and be broken or ruined, and it may even pull the shafting, pulleys and hangers down onto the heads of the workers below.



This condition is easily remedied by placing a pulley in the vacant space, as shown in the accompanying sketch, so that the belt cannot drop into the space and get caught. The diameter of this additional pulley should not be less than the diameter of the smaller pulley and not greater than the larger pulley.

Also, when a belt runs off a pulley that is located adjacent to a hanger, the situation is hazardous unless provision is made to prevent catching of the belt between the hanger and pulley. This can usually be done by attaching a hook or guard to the hanger in such a way that the belt will drop onto the hook or guard when it runs off the pulley. Entangling will then be impossible.

## Handy Screwdriver Idea

Here is a handy kink for use in the daytime as well as at night. Many a time I have had difficulty in "seeing the slot" in the head of a screw and have been obliged to grope and feel around for it.



Flash lamps are now made in such extremely small sizes that I hit upon the idea of fastening a flash lamp to the shank of a screwdriver as indicated in the sketch. The light accomplishes its purpose very well. With this arrangement I can now plainly see the screw slot at any time—night or day.

Some time ago I did the same thing with an oil can, fastening the flash lamp in such a position that it lighted the end of the spout. I found it to be a great time and oil saver.

**THIS DRUM**



**CARRIES OIL**



## ***SO THEY CAN "CARRY ON"!***

Their exact destination is a military secret . . . but thousands of these *five imperial gallon containers* filled with high-grade lubricating oil are being shipped to the far-flung battlefronts of the United Nations' forces.

They're sturdy containers . . . designed to meet Government's rigid specifications . . . built by Crown to stand up under the rough handling they are bound to receive on their way to as well as on the battlefields.

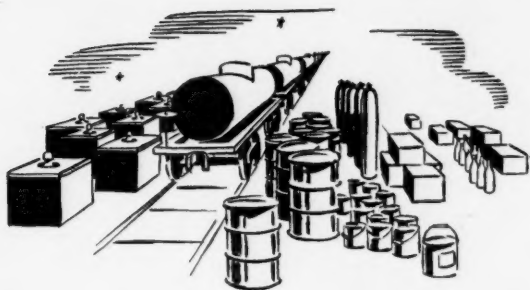
And because of their durability and the convenient bail, these Crown containers are used again and again . . . often for the transport of other liquids after serving their original purpose.

Just one more example of how Crown Can is doing its part to speed the war effort!

CROWN CAN COMPANY, PHILADELPHIA, PA.,  
Division of Crown Cork and Seal Company,  
Baltimore, New York, St. Louis, Houston, Madison,  
Orlando, Fort Wayne, Nebraska City



# **CROWN CAN**



## PACKAGING & CONTAINER FORUM

By Richard W. Lahey

### Changes in ICC Regulations for the Transportation of Dangerous Articles

On Dec. 12, 1942 the I. C. C. issued an Order making certain emergency changes in the Regulations and Specifications which became effective on that date. The complete Order appears in the Federal Register of December 17, 1942 on pages 10560 to 10562 and these amendments will be published as soon as possible by the Bureau of Explosives.

(1) *Sec. 110 (a) (20) Tank Cars holding inflammable liquids flashing at 20° F. and below.* The Emergency USG-A, USG-B, and USG-C tank cars authorized June 15, 1942 for transporting gasoline are now authorized for liquids weighing not more than 8 lbs. per gallon and vapor pressures not over 16 lbs. per square inch absolute at 100° F.

(2) *Sec. 110 (a) (22) Inflammable liquids flashing at 20° F. and below packed in glass bottles in fiber shipping boxes.* The previous Regulation restricted the shipment of these liquids to glass or earthenware inner containers not over 1 quart capacity each packed in Spec. 12B fiberboard boxes maximum gross weight per shipping package 65 lbs. This amendment increases the size of the glass or earthenware containers to 1 gallon. Not over 4 one-gallon containers may be packed in a shipping container and the maximum gross weight of the package is increased to 75 lbs. The fiberboard box is a new specification numbered 12D.

(3) *Sec. 117 (b) Rubber Cement.* The restriction prohibiting the use of Spec. 10A tight wood barrels or kegs for transporting rubber cement has been removed, provided the cement contains no carbon bisulfide. Spec. 10B barrels are not authorized.

(4) *Sec. 110 (b) (5) Inflammable Liquids flashing between 20° and 80° F.* Tight wooden whiskey barrels with staves

of uniform thickness of at least one inch and otherwise complying with Spec. 10B are also authorized. These barrels must be marked I. C. C. 10B; no other marking or branding is required.

(5) *Sec. 207 (b) (6) Fused or Concentrated Sodium and Potassium Sulfide (may be chipped, flaked or broken but not ground).* The Spec. 21A fiber drum, holding a maximum net weight of 250 lbs. and of special construction is added to the list of approved containers. These drums must contain moisture proof liners or have one added ply of asphalt laminated kraft (30/60/30 basis weight) in sidewalls and heading (metal heading excluded). The drums must be able to withstand 2 drops from a height of 4 feet in the same spot or one 6 foot drop.

(6) *Sec. 254A (d) Chromic Acid Solution.* A glass bottle holding 4 fluid ounces has been added to the permitted list of containers. This package consists of a Spec. 12B fiberboard shipping case containing only one glass 4 ounce bottle packed in a wax lined cylindrical fiber carton with metal ends. The bottle must have a ground glass stopper held by paraffin dipped cloth secured by a wire tie. The space between the bottle and the inner walls of the fiberboard cylinder must be filled with enough asbestos to completely absorb contents in case of breakage.

(7) *Sec. 339 (b) Aniline Oil.* The size of the glass bottles have been increased from 1 lb. capacity to 5 lbs. capacity. Not more than 6 of these larger bottles may be packed in the wooden shipping case Spec. 15A, 15B, 15C, 16A, or 19A.

(8) *Sec. 346 (g) Methyl Bromide.* The Spec. 5A metal drum of 30 gallons maximum capacity is added to the list of approved containers.

(9) *Sec. 349 (i) Poisonous Liquids other than those for which special requirements are prescribed.* The quantity of these liquids which may be packed in a glass inner container and shipped in a fiberboard box is increased from 1 quart to 1 gallon. The gross weight of the shipping container is increased from 65 lbs. to 75 lbs. but no more than 4 glass bottles are allowed in a fiberboard shipping box if their capacity is greater than 5 pints. The fiberboard shipping box which is required is Spec. 12D—the new fiberboard box mentioned in # (2).

(10) *Sec. 361 (c) (1) Poisonous Solids Class B—other than those for which special requirements are prescribed.* The gross weight of the packed Spec. 17E or 37D drums is increased from 300 to 375 lbs.

(11) *Spec. 12D—Fiberboard box.* This new specification is based on the Spec. 12B box and must comply with that specification with certain exceptions. The principal changes are as follows:

1. All box materials including linings and pads must be of double wall corrugated.

2. Boxes of 25 lbs. authorized gross weight must be made of 275 lb. test board with liners and top and bottom pads of the same material.

3. Boxes of 75 lbs. authorized gross weight must have glass containers packed in individual fiberboard boxes made of 275 lb. test board and these packages packed in an outside fiberboard box of fabricated from 350 lb. test board.

4. All completed packages must be capable of standing a drop of 4 feet onto solid concrete without breaking the inside container.

Further details of this specification should be obtained from the Federal Register of December 17th or from the Bureau of Explosives.

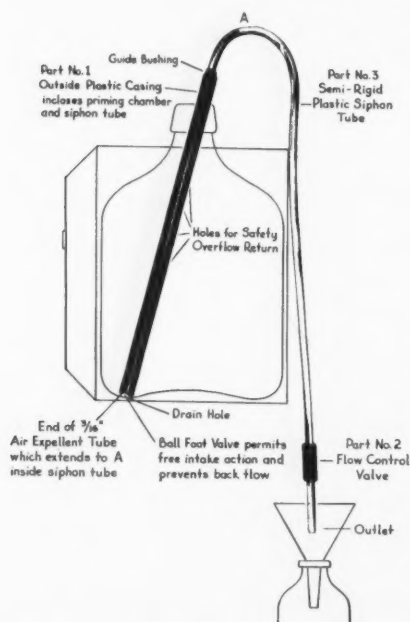
#### New Acid Siphon

It is always a hazardous operation to dispense corrosive acids from carboys and drums. Many very serious accidents have occurred where the uncertain methods of tipping, rocking and uncontrolled pouring have been employed. The carboy may now stand without moving until completely empty. The flow is clean—easily and positively controlled.

For safety reasons alone, Speare's safety siphon will be enthusiastically received by those establishments handling acids and other corrosive liquids. At the same time, the efficiency of the siphon in time and labor-saving, will at once be recognized.

This safety siphon is made of a semi-flexible plastic, impervious to ordinary commercial acids and alkalis. Its design and sturdy construction are the result of careful engineering study. The illustration with its legend show the important points and parts.

Priming is accomplished by holding the siphon in the carboy with one hand and the other grasping the tube near A. A slow medium pumping stroke will then fill the siphon with liquid, the air being expelled through the air expellent tube. The siphon is now ready to operate by simply opening and closing the flow control valve. It cannot become over-primed

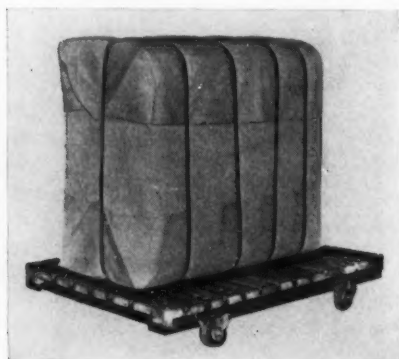


or over-loaded because the liquid will immediately flow safely back into the carboy through holes provided for that purpose, or through the air expellent tube.

Speare's safety siphon has passed the test stage and has been operating for considerable time under varying conditions, and meeting all requirements faithfully. Descriptive literature is available by addressing Alden Speare's Sons Co., 156 Sixth Street, Cambridge, Mass.

### Paper for Baling

For many years, textile manufacturers have wrapped their bales of finished goods in burlap, and, with war in the Pacific, burlap is not available today. Chase Bag Co., Chicago, has introduced a new appli-

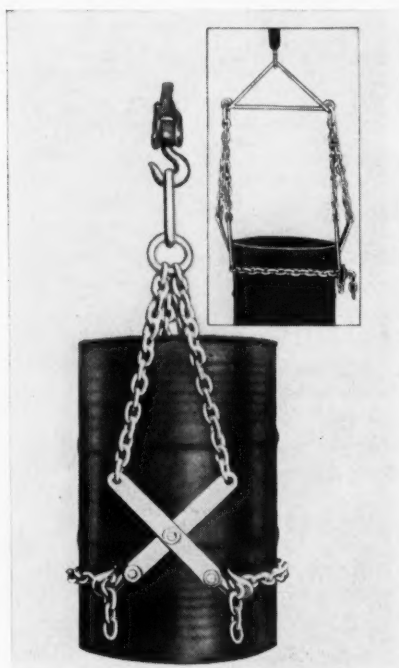


cation for their CD-99 Duratex—a water-proof crinkled Kraft paper.

A sheet is laid under the bale, a pre-formed, sewn tube is slipped around it, and a sheet is laid on top. The bale then goes into the compressor, and metal straps or wire ties are applied.

In many applications, this 1-2-3 method results in an appreciable time saving over the old hand sewing method employed when burlap was used . . . but its biggest advantage lies in the fact that a Duratex-wrapped bale is both moisture and dust proof—a feature that appeals strongly in today's war against waste.

### New "Barrel Grab"



This new type "barrel grab" may be used for picking up any type of steel or wood barrel, box or container, from 40" in diameter down to small nail keg size. Will lift up to 2,000 lbs. Toggle constructed of  $\frac{1}{2}$ " by 2" flat bar stock and pivoting pin of 1" cold rolled steel with retainer head. Chain is  $\frac{3}{8}$ ", while the spacer and hoisting bar is made of  $\frac{3}{4}$ " diameter cold rolled steel bar. Palmer-Shile Co., 7126 West Jefferson Ave., Detroit, Mich., make this new pick-up and handling device.

### Armour Barrel Research

Last spring, the Associated Cooperage Industries of America, Inc., decided to initiate a research program for wooden barrels because of the many serious problems confronting the industry as a result of the war. This work is under the direction of Mr. Ira W. Wolfner, Chairman of the Research Committee.

The Armour Research Foundation of Chicago has been actively engaged in this

work since September first and considerable progress has been made. The initial project has been to find and test linings for tight barrels. Any member of the Cooperage Association may present problems of packing products not heretofore shipped in barrels to the Foundation through the Association Office. This service should be of considerable help to barrel users as well as to coopers.

### WPB Order Revoked

The WPB Conservation Order M-158 which placed restrictions on the painting of metal drums was revoked on December 17th. It was found that many chemical producers use different color combinations to identify products. It has been found that the use of this system has materially improved safety records.

### To Build Stockpile

Fruit and vegetable growers and shippers were urged recently by the Containers Division, WPB, to accumulate immediately a stockpile of second-hand wood boxes, crates, baskets, barrels, and hampers for use in shipment of their 1943 crops.

At the same time, the Division appealed to retailers and other merchants to sell such empty containers at a nominal price either to second-hand container dealers, or to the growers themselves rather than turn the containers into channels where they will be destroyed.

By following this advice, growers, shippers, and retailers not only will help relieve an expected heavy demand for new wood containers, but also ease the strain on manpower and transportation during the 1943 harvest season.

Greater quantities of wood containers will be needed to market the larger crops that are expected as a result of increased agricultural production goals, and to ship supplies overseas to the armed forces and to the United Nations.

In order to conserve supplies for such purposes, the Containers Division recommended that all types of second-hand wood containers be salvaged by growers and shippers, even though it may have been customary in the past in some localities or for some crops to use only one type of container. For example, growers and shippers who, in the past, have used only bushel baskets can use boxes if they are more readily obtainable in the used-container markets.

Supplies of second-hand containers may be obtained from grocery stores, restaurants, second-hand dealers, and similar merchants. Growers can use vacant space in their sheds and barns to store the empty containers until the 1943 harvest season begins.



## Why do bees air out their package every day?

**D**ID you know that bees do a "fan dance" standing still? They do it every day, to air condition the package they live in—the beehive.

A beehive bulges with busy bees. Where there's such a crowd, the air soon would grow stale—workers soon would get groggy. Packaging problem: to keep the air fresh. The bees have solved *that* one.

Certain bees have just one job—to act as fanners. They stand perfectly still all day, ceaselessly beating their wings. This fanning forces stale air out of the hive, makes currents of clean, fresh air flow in. The air movement, too, helps evaporate water from the honey and make it purer and "riper."

Bees made their package successful.

They had to do it themselves. Modern business men are luckier. They come to Continental, packaging headquarters for industry. Today, however, war efforts come first.

The experience and resources of Continental are now enlisted in helping the nation. Besides millions of food containers for civilian America, for our fighting forces, and for our Allies, we are producing other packages to protect America.

Anticipating another day, we see many new applications of the things we are learning and doing now. If you are looking ahead or developing an idea, we'll be glad to help you. Our packaging engineers, research men and designers are at your service at all times.

### *What will be the PACKAGE of the FUTURE?*

The package of the future will be the package that best meets *all* these 10 important points:

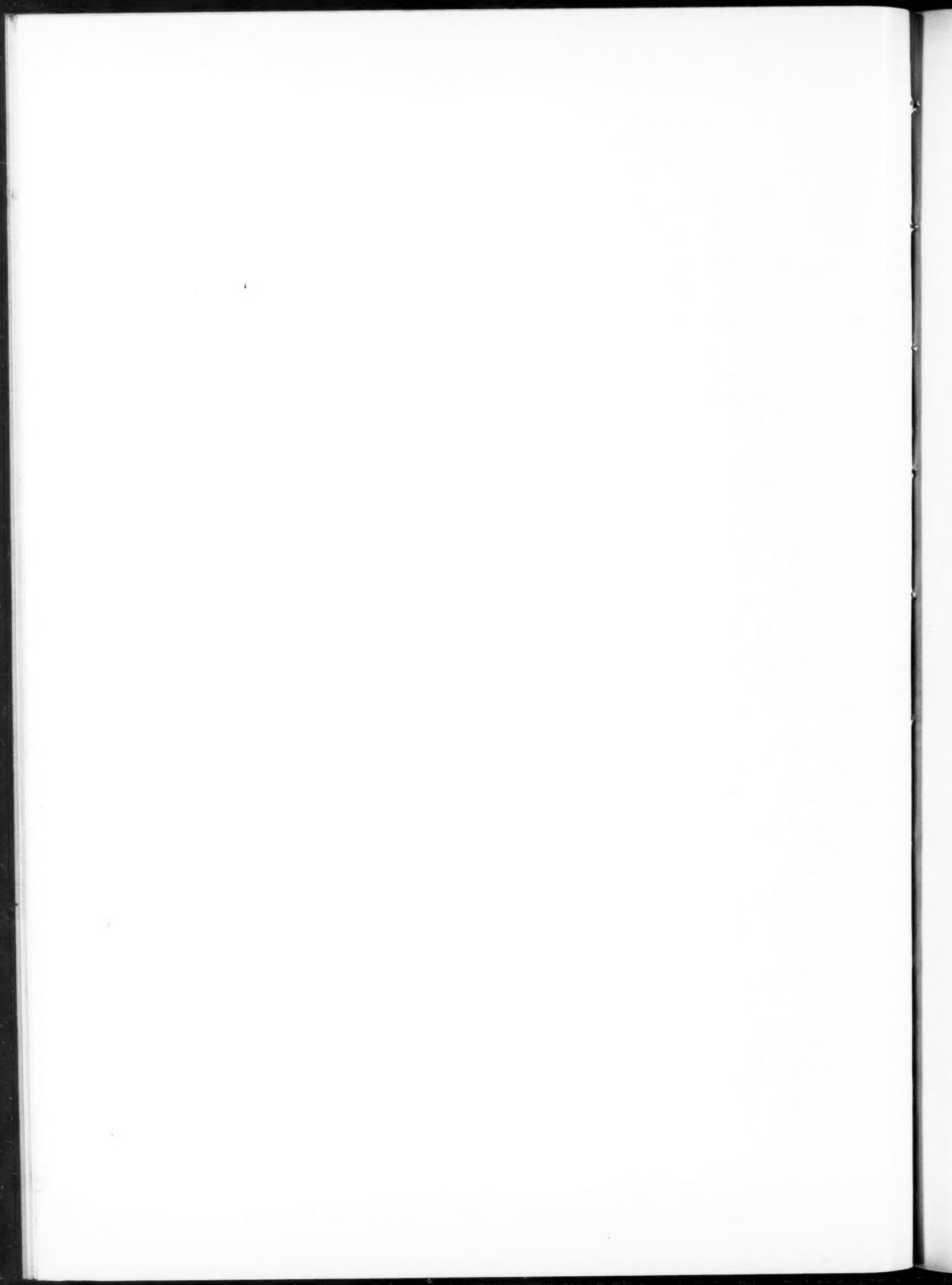
1. Protects against light, heat, and dirt.
2. Does not chip, break, or tear.
3. Is adaptable to *highest* speed filling operations.
4. Is economical to pack, ship, and handle.
5. Light weight, compact, no waste space.
6. Moisture and vapor proof, impervious to temperature changes.
7. Easy and convenient to display, sell.
8. Available in wide variety of sizes, shapes, styles (over 500).
9. Offers maximum convenience and safety in consumer usage.
10. Permits high processing temperatures, certain hermetic sealing.

These points made the metal container *first* in packaging. If there ever is another package that has *all* these qualifications, we'll be making it!

## CONTINENTAL CAN COMPANY

*Packaging Headquarters for Industry*





# NEW EQUIPMENT

## Automatic Strainer QC215

S. P. Kinney Engineers have enlarged the scope of the Brassert Self-Cleaning Water Strainer. The strainer, made in 3" to 30" pipe line sizes, is now built of special materials for use in straining sea water, and also for service at coke and similar plants for straining ammoniacal liquor. The strainer removes fine suspended particles from raw or process water, and disposes of these particles in a continuous, automatic and self-cleaning manner.

The new strainers for sea water are equipped with ni-resist cones, chrome-nickel body and covers, admiralty metal ring gear and monel metal liners, stellite bushing and sleeve, stainless steel main shaft and pinion gear, and stainless steel retainer rings for stainless or porcelain straining media.

Brassert strainers for ammoniacal liquor are equipped with chrome-nickel body, cover and revolving drum castings, forged steel ring gear, stellite bushing and stainless pinion gear, stainless steel liners, stainless steel retainer rings for stainless steel or porcelain straining media.

Strainers for use on river, lake, canal, or well water are equipped with the same chrome-nickel body, cover and drum castings, stellite bushing and stainless steel pinion. Bronze is used for the ring gear, the liners, and the straining media retaining rings. The straining media is of porcelain or stainless steel conical screens.

The Brassert Automatic Self-Cleaning Strainer consists essentially of a slowly rotating conical drum, mounted on a vertical shaft, within a cast iron housing. The entire surface of the drum is drilled to receive the straining media which consists of porcelain discs, or flat, or conical wire stainless steel screens.

The dirty water, or other liquid to be strained, enters through an inlet at the bottom of the housing and then rises around the outside of a revolving drum. The discharge of the clean water is effected through an outlet at the bottom of the housing; this discharge being diametrically opposite the inlet. The dirty water entering the strainer is under pressure and therefore passes through the straining elements in the drum. The foreign matter in the water is retained on the

surface of the perforated porcelain discs, or screens, and is carried in this position, by slow rotation of the drum, to a backwash slot. One or two wash-out orifices are cast integrally with the housing, according to the size of the strainer. These orifices provide a slot which serves as a washout discharge for one vertical row of screening media. At this slot a reversal of flow takes place, and clean water from the inside of the drum flushes through the screening media and removes the dirt from the strainer.

Differential pressure, between the water in the interior of the drum, and atmospheric pressure provides an efficient means for backwashing the straining media. The pressure drop through the strainer is 1½ pounds, and the backwash water is discharged at atmospheric pressure.

## Heavy-Duty Truck QC216

The Baker Industrial Truck Division of The Baker-Raulang Company, has announced a new heavy-duty 10,000 lb. capacity crane truck known as the Type CXF which was designed to handle the heavier unit loads occasioned by the war production program.

The company claims that the efficient operation of this crane is due in part to the reduction of dead weight. The hoist units are positioned so that they are available as counterweight, resulting in lower gross weight in spite of heavier construction throughout. Safety of operation is assured because

the bridging over the top of the battery compartment is closely spaced so that the operator may look easily along either side.

The mast on which the superstructure slews is a tall member giving two widely separated points of bearing which results in low bearing loads. This mast height permits a higher position for the topping cable idler sheave than is possible with other designs. This position gives a more favorable angle of pull when raising the boom from the extreme lowered position.

As on other Baker crane trucks all controls are located on the dash and do not swing with the superstructure. The No-Plug travel controller makes careful and correct operation compulsory.

This Baker mobile crane is adapted to industry where heavy loads must be lifted—for erecting work, for combined lifting and transporting operations, for placing work in machines and for many other applications. It supplements the overhead traveling crane and two or more units can work in the same bay, passing each other.

## High Pressure Pump QC217

A new motor-driven starting pump for high pressures has been developed by the Watson-Stillman Company. This simple compact unit is designed for primary or auxiliary service. It is an efficient, economical starting or test pump for oil and water.

The pump is a two-plunger vertical unit. Its ¾" diameter plungers have a 1½" stroke. Powered by a 2 H. P. motor driving at 720 R.P.M., the pump develops 4000 pounds per square inch. It delivers 130 cubic inches per minute at a pump speed of 100 R.P.M.

**Fill Out Reverse Side for Further Information**

Postage  
Will be Paid  
By  
Addressee

No  
Postage Stamp  
Necessary  
If Mailed in the  
United States

## BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 4288, Sec. 510, P. L. & R.

NEW YORK, N. Y.

## CHEMICAL INDUSTRIES

*The Chemical Business Magazine*

522 FIFTH AVENUE

NEW YORK, N. Y.

The overall dimensions are 48" by 23". It stands 48½" high, weighs 1400 lbs. and has a tank capacity of 20 gallons.

#### Sweeper

QC218

A mechanized method of factory sweeping is now offered by the Moto-Mower Company as they have adapted their tractor for this purpose. The Moto-Sweeper may be turned right or left under its own power by means of a separate clutch on each wheel of the tractor. These are controlled at the handlebar.



The sweeper will pick up heavy metal machinings as well as lighter dust and dirt. Optional equipment includes a sulky for the plant with great floor space, an adjustable spray to just lay the dust, and a heavy bumper for the larger models. The multiple uses of this type of equipment are illustrated by one of the models whose tractor can also be adapted to a lawn mower and snow plow.

#### Low Pressure Flow Transmitter

QC219

The new Cochrane Style H transmitter, used in conjunction with standard Cochrane electric meter receiving units is designed specifically for the measurement of low static pressure

gases where low differential and resultant low permanent pressure loss is of prime importance.

Differential pressure created by flow is applied to the opposite sides of the oil sealed bell with the pressure from the connection before the primary element being applied under the bell and the downstream pressure above the bell. A metallic displacer in the central reservoir is submerged in mercury to a point where the bell and displacer just float when no differential pressure is exerted. A flow of gas resulting in a change of differential pressure raises the bell, lifting the displacer from the mercury with the change in buoyancy being just sufficient to give a bell movement proportional to the differential pressure. The translation of bell movement to uniform-chart readings is accomplished by the individually calibrated cam common to Cochrane receivers.

The Style H transmitter is designed for differentials of 2, 4, 6, 8, or 10 inches of water. Standardization of design permits altering the differential head by changing the displacer and amount of mercury in the central reservoir. The bell casing is designed for a maximum working pressure of 75 pounds per square inch.

Differential pressure in excess of the design differential will move the bell to its upper limit, and the gas will bubble out from under the bell with relatively little disturbance because of the large volume of bell in comparison to the size of high pressure inlet pipe. Normal operation of the meter is resumed upon the differential falling to normal values.

Ease of accessibility to the transmitter interior permits quick and thorough cleaning of all parts, an operation made often necessary on

blast furnace and coke oven gases. Sealing oil level can be quickly checked through the filling plug without removal of the top cover. The same mounting bracket can be used in either wall or floor mounting of the unit.

#### Air Driven Mixers

QC220

Mixing Equipment Co announces the addition to their regular line of three new heavy duty air driven mixers. Two of them are gear reduction models. The third is a larger direct drive model.

According to the company the features of these mixers especially adapt them to the mixing of paints, chemicals, high explosives and alcoholic compounds. The air driven motors used in these mixers cannot be overloaded or burned out. Even when used in the heaviest liquids they will not stall. The air exhaust from the motor is so arranged that it keeps the motor running cool at all times.

Models of 1 h. p. and 1/3 h. p. are available. They are equipped with gear reduction drive and adjustable shaft length.

#### Constant Temperature Dry-ice Cabinet

QC221

Temperature from -90° F. up to 220° F.,  $\pm \frac{1}{2}$ ° F., are available in the new laboratory cabinet of the American Instrument Co. -60° F. and -90° F. are attained in 15 and 30 minutes from an initial temperature of 85° F.; -40° F. and -90° F. can be maintained in an ambient temperature of 85° F. for 25 hours with 40 and 60 lbs. of dry ice respectively.

The cabinet is portable and ready for operation after packing with dry ice and plugging the cord into the current supply. It is available in two temperature ranges: from zero to -90° F., and from 220° F. to -90° F. In the former model, the temperature is controlled by an Aminco Quick-set Bimetal Thermo-regulator, which, through a solenoid and an electronic relay (time-delay) operates a damper that allows air to be passed over the dry ice when cooling is needed, or to be by-passed when cooling is unnecessary. The temperature control system requires only natural heat leakage for its operation.

In the high-and-low temperature model the above control is augmented by the Aminco LoLag Electric Heaters operated through an Aminco Silent Power Relay.

A scale permits quick setting of the externally-controlled hand damper, which limits the amount of air passed over the dry ice in proportion to the temperature desired.

For more information, circle the reference numbers on the postcard below. Give your name, company and address. Detach and mail. No stamp required.

**Chemical Industries, 522 Fifth Avenue, New York, N. Y. (1-3)**

I would like to receive more detailed information on the following equipment. (Circle those desired.)

QC215	QC217	QC219	QC221
QC216	QC218	QC220	

Name ..... (Position) .....

Company .....

Street .....

City & State .....



## Analysis

● Chas. Pfizer & Co., Inc. has always regarded the careful and intelligent examination of all products as not only a necessary but also an important part of its manufacturing processes. We believe that the uniformity and high purity of our products cannot be assured without thorough examination and that it involves more than just the routine checking of materials against certain specifications.

The personnel of our Analytical Department is of the highest caliber and every effort has been made to make the most modern equipment available. Through thorough and careful analysis it has been possible for this department to make many suggestions which have resulted in improved products and im-

proved methods of manufacture.

The research division of this department is constantly striving to improve or devise new techniques for the examination and analysis of our materials. New products, too, have always occasioned considerable analytical research, it often having been necessary to revise existing analytical methods to a great extent, or even to devise entirely new procedures. Needless to say, all of this would be impossible if analysis were considered to be merely a routine matter.

We feel that the reputation for dependability and high quality which our products enjoy is due in no small measure to our Analytical Department.

MANUFACTURING CHEMISTS • ESTABLISHED 1849

# Chas. Pfizer & Co., Inc.

81 MAIDEN LANE, NEW YORK • 444 W. GRAND AVE., CHICAGO, ILL.



Make  
"Standard"  
BICHROMATES  
your standard

Bichromate of Soda  
Bichromate of Potash  
Chromate of Soda  
Chromate of Potash  
Ammonium Bichromate



**PRIOR CHEMICAL CORPORATION - NEW YORK**

**420 LEXINGTON AVENUE**

Chicago Office: 230 N. Michigan Ave.

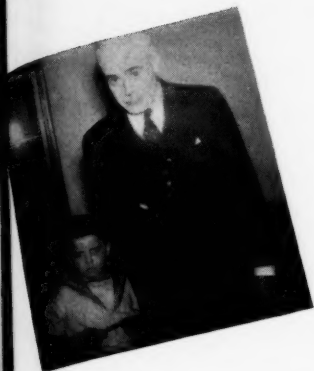
*Selling Agents for*

**STANDARD CHROMATE DIVISION**

Diamond Alkali Company, Painesville, Ohio



## **Fathers and Sons Attend Annual Chemists Club Luncheon Jan. 5**



Once again fathers and sons gathered together at the Chemists' Club, N. Y. City for their annual luncheon held always just after the New Year begins. Bill Orchard (top center), Wallace & Tiernan, again delivered his speech of welcome.

Top left, Charles N. Frey (Standard Brands) and his son Charles F. Below them, Alan P. Lee and 6-year-old Alan Coast Lee. Below them, W. J. Kramer (Philipp Bros.), and son George W. Bottom left, the Stiehs, Charles G., Bill and Bill Sr. Bottom center, J. G. Detwiler (The Texas Co.) and son Jim Jr.



Bottom right, Robert Shoemaker and son Clayton. Above that, left to right, R. F. Demmon and son Roy Jr., and Jack and Hans Stauffer. Above them, Dr. Ray Downs and son Walter Burwell and Walter J. Murphy and son Walter Jr. Top right, T. L. Harrocks and son James A.



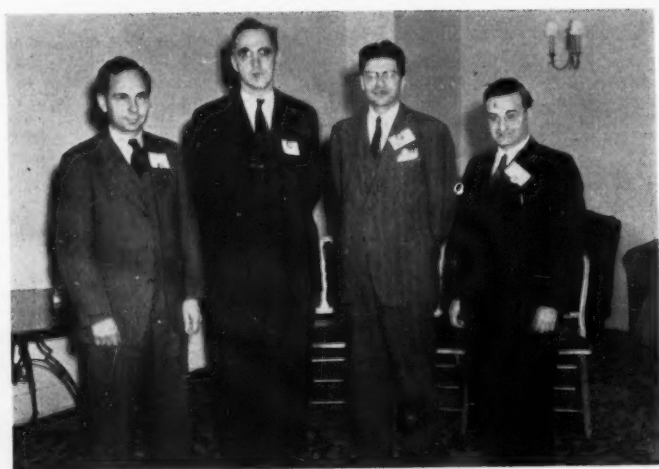


## American Chemical Society Holds Ninth Ch. E. Symposium In Chicago, Dec. 28 and 29

Ninth Annual Chemical Engineering Symposium, Division of Industrial and Engineering Chemistry, American Chemical Society was held at the Palmer House, Chicago, Dec. 28 and 29. CI sent a photographer to get these pictures. O. A. Hougen of the University of Wisconsin was chairman of the symposium committee. Left, group in session listening to K. M. Watson, U. of Wisconsin.



Left, group of speakers. Front row seated, left to right: Henry Eyring, Princeton University; C. C. De Witt, Michigan State College; T. B. Drew (Columbia U.), Symposium Committee; H. F. Johnstone, Executive Committee; O. A. Hougen; and B. W. Gamson. Standing, left to right: R. H. Wilhelm, Princeton University; E. W. Comings, University of Illinois; F. S. Acton, Princeton University; F. Daniels, U. of Wisc.; C. W. Deane, Colgate-Palmolive-Peet Co.; John du Domaine, U. of Wisc.; P. H. Emmett, Johns Hopkins University; A. E. Pufahl, U. of Wisc.; H. F. Hoerig, U. of Wisc.; Don Hanson, U. of Wisc.; R. B. Beckman, U. of Wisc.; R. J. Altpeter, Local Arrangements Committee; K. M. Watson, U. of Wisc.; D. M. Hurt, E. I. du Pont; Geo. Thodos; and N. K. Anderson.



Left to right: Henry Eyring, Princeton U.; P. H. Emmett, Johns Hopkins; K. M. Watson, U. of Wisc.; and Farrington Daniels, U. of Wisc.



W. S. Bonnell (left), Gulf Research and Development Co. and O. A. Hougen, chairman.

**EXPERIMENTAL  
CHEMICALS  
OF TODAY...**



**... FOR THE  
PRODUCTION  
PROBLEMS OF  
TOMORROW**

## **p-tert-AMYLPHENOXY ETHANOL\***

### **PROPERTIES**

Color and Form . . . . .	Water-white, Liquid
Odor . . . . .	Faint
Theoretical Molecular Wt. . . . .	208.3
Boiling Range . . . . .	297-310°C
Solidification Point . . . . .	-55°C
Specific Gravity at 20°/20°C . . . . .	1.013
Flash Point (Open Cup) . . . . .	282°F
Refractive Index at 20°C . . . . .	1.519
Viscosity at 25°C . . . . .	95 centipoise
Solubility Characteristics:	
Water . . . . .	Insoluble
Alcohol . . . . .	Soluble
Ether . . . . .	Soluble
Benzene . . . . .	Soluble
Naphtha . . . . .	Soluble

\*Licensed under Coleman et al U. S. Pats. Nos. 2,158,959 and 2,158,960

The properties outlined above suggest the possible use of p-tert-Amylphenoxy Ethanol as a plasticizer for molding and surface coating compositions. It can also serve as a raw material for the synthesis of esters and other higher boiling derivatives that offer interesting possibilities in similar applications where still lower vapor pressure is an essential property. Exploration of new uses for this ether-alcohol is still in the initial stage and samples are available for testing by those interested.

The synthesis of p-tert-Amylphenoxy Ethanol has been developed in pilot plant operations and commercial scale production can be started when circumstances warrant and permit.

Many other newer products as well as those being manufactured commercially are described in the 13th edition of "SHARPLES SYNTHETIC ORGANIC CHEMICALS." If your copy has not been received, write for one today.

**SHARPLES CHEMICALS INC.**  
PHILADELPHIA CHICAGO NEW YORK



## SHOTS FROM HERE & THERE

## UNITED STATES TREASURY DEPARTMENT



*For distinguished services rendered in behalf of the  
National War Savings Program this citation is awarded to*

### Barrett Division

*Given under my hand and seal on*

**December 5 1942**

*Henry Morgenthau Jr.*

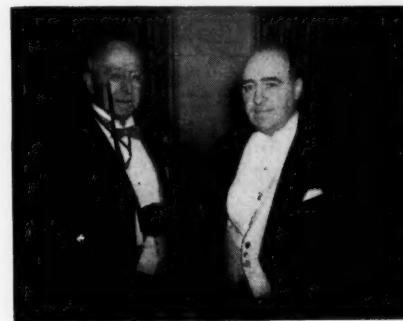
*Secretary of the Treasury*

Right, Barrett Division, Allied Chemical & Dye Corp. has been awarded a citation for distinguished services rendered in behalf of the National War Savings Program. It was given to the company in recognition of its War Bond advertising.



Left, Dr. Albert B. Newman, dean, school of technology, City College of New York, one of the discussion leaders on the Manpower Panel. Below, the Chemical Plant Equipment panel. Left to right, Donald Knapp, Packaging Section, Chemicals Div., WPB., Walter J. Murphy, editor, *Chemical Industries*, chairman of the panel, and Arthur Mudge, Plant Facilities Unit, Chemical Division, WPB.

Walter J. Murphy, editor of *CHEMICAL INDUSTRIES*, was chairman of the panel on Chemical Plant Equipment at the War Production Conference for the Solution of



Dr. Marston T. Bogert presents the Perkin Medal to Dr. Robert A. Wilson at a ceremony at the Hotel Commodore in N. Y. City, Jan. 8. See page 76 for full story.



Manufacturing Problems at the Hotel Pennsylvania, N. Y. City, Jan. 7. The Conference was sponsored by various technical associations and societies at the request of the War Production Board. William L. Batt, vice-chairman of the WPB, was principal speaker at the dinner, his subject "War Production in 1943."

On the chemical plant equipment panel, Harry P. Outcalt, St. Joseph Lead Co., was secretary. Discussion leaders included Arthur Mudge, plant facilities unit, Chemicals Division, WPB, who spoke on Utilization of Used Chemical Equipment in the War Effort, and Donald Knapp, chief, packaging section, Chemicals Division, WPB, who spoke on The Container Problem in the Chemical Industry.

Other panels were held on ordnance inspection, manpower problems, machine shop problems, metallurgical problems, foundry production and welding problems.



## **PRODUCTION ON THE WING!**

**Baker** helps you meet wartime emergencies with  
*High Purity Chemicals—Tonnage Producing Capacity*

Throughout the nation production is soaring.

But it must move still faster. Wartime demands, in ever-increasing volume, are pouring in upon manufacturers.

Every day, chemists and production executives engaged in new fields of work are faced with new problems. Every day, their need for tonnage chemicals of exacting specifications is more urgent.

To these men, Baker offers assistance.

We, too, have enlarged our facilities and you can get tonnage chemicals of unusual purity from Baker.

We invite you to call upon Baker—and to rely upon Baker as a reliable source of supply. Baker will gladly contribute the combined knowledge of its Technical, Executive and Manufacturing Staffs to meet any wartime problem.

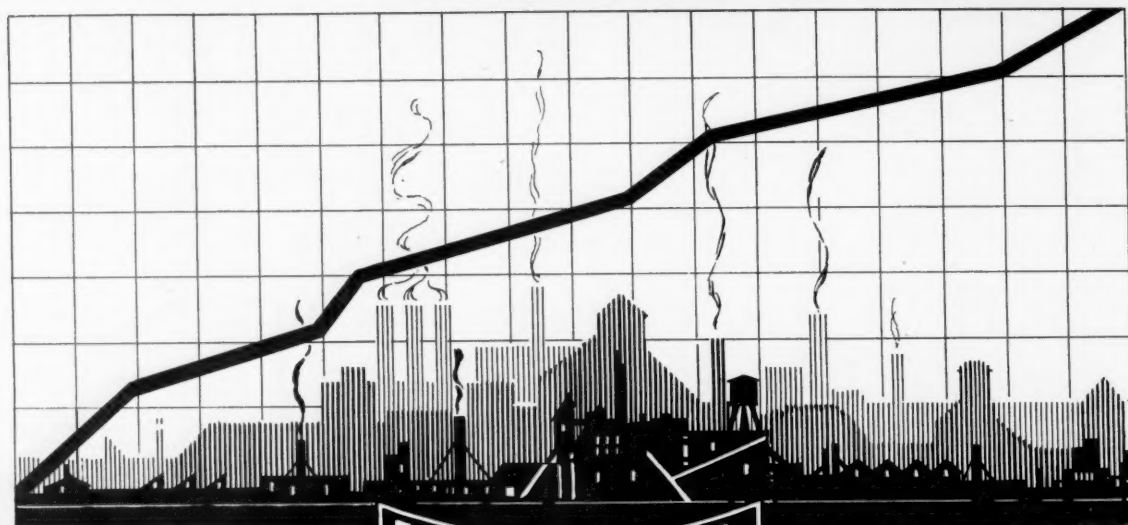
**J. T. Baker Chemical Co., Executive Offices and Plant: Phillipsburg, N. J. Branch Offices: New York, Philadelphia and Chicago.**

# **Baker's**

INDUSTRIAL CHEMICALS



# Step Up PRODUCTION



with **NUCHAR**

## ACTIVE CARBON

With the necessity for increased production and the inability to obtain distillation equipment, the Chemical Process Industry should investigate the use of a two-stage purification, combining adsorption with distillation. Nuchar Activated Carbon may be employed either before or after distillation, depending upon the impurities to be removed, thus relieving overtaxed distillation equipment and stepping up production.

Treatment with NUCCHAR Active Carbon prior to distillation will remove various gums, resins, etc., thus simplifying the subsequent distillation.

In many cases where redistillation was normally necessary, the second distillation may be replaced by treatment with Nuchar Active Carbon.



### INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP & PAPER COMPANY

230 PARK AVENUE  
NEW YORK CITY

35 E. WACKER DRIVE  
CHICAGO, ILLINOIS

748 PUBLIC LEDGER BLDG.  
PHILADELPHIA, PA.

844 LEADER BLDG.  
CLEVELAND, OHIO.

# NEWS OF THE MONTH

## W. J. Murphy Becomes Editor of A. C. S. Publications

**W**ALTER J. Murphy, editor and general manager of **CHEMICAL INDUSTRIES**, was selected this month to succeed the late Harrison E. Howe as editor of *Industrial and Engineering Chemistry* and *Chemical and Engineering News*. Through the selection, which was made by the Board of Directors of the American Chemical Society unanimously concurring in the recommendation of the Executive Committee, Mr. Murphy also becomes director of the A. C. S. News Service.

He leaves **CHEMICAL INDUSTRIES** after an association which lasted 13 years, the last three of which he was editor and general manager. Mr. Murphy is a figure well-known in the field of technical journalism.

Mr. Murphy was born in Brooklyn, N. Y., August 20, 1899. He attended public schools in Brooklyn and after graduation from Boys High School, he went to Polytechnic Institute of Brooklyn where he received the B.S. degree in chemistry in 1921. At the Polytechnic Institute he was active in extra-curricular activities, being treasurer of the Polytechnic Chemical Society, member of the musical societies, and manager of the track team.

Following graduation he joined the research staff of the Air Reduction Co. at Elizabethport, N. J. Here, under the direction of Floyd J. Metzger, he first worked on the purification and industrial applications of rare gases, principally neon, and later was assigned to pilot-plant operation activities.

In 1922 he went with the American Cyanamid Co. as sales engineer. While there Mr. Murphy, under direction of Walter S. Landis, did development work on liquid hydrocyanic acid, calcium cyanide, and the application of these products as insecticides and fumigants.

During this period he traveled extensively in Latin American countries endeavoring to apply these new materials

to agricultural problems peculiar to those latitudes. In this work he was in direct contact with many of the experiment stations, and university and college laboratories located in these various countries. The use of calcium cyanide to control leaf-cutting ants, a serious pest in the citrus-growing industry of Brazil and Cuba, was one of the many techniques Mr. Murphy developed.

By invitation of the Puerto Rican Insular Government in 1923, he worked out, in cooperation with the staff of the Puerto Rican Agricultural Experiment Station, the details of large-scale fumigation of tobacco warehouses for destroying tobacco weevils. He left the American Cyanamid Co. in 1925 to go with the Naugatuck Chemical Division of the U. S. Rubber Co. Under a special assignment he studied potential markets for heavy industrial chemicals in the New England area. After completing this survey he accepted the vice presidency of George Chemicals, Inc. His new responsibilities also included the vice presidency in charge of manufacturing of a subsidiary company, The Seaboard Crystal Co.

In 1923, he became sales assistant to the president of The Mutual Chemical Co. of America.

Mr. Murphy's experience in research, plant operation, technical sales service, and marketing made him well qualified for his next position, that of managing editor of *Chemical Markets*, which position he assumed in July of 1930. Later this publication became known as **CHEMICAL INDUSTRIES**. In 1939, Williams Haynes, editor and publisher of **CHEMICAL INDUSTRIES**, sold the publication to the Trade Press Publishing Corp. and Mr. Murphy was made editor and manager shortly thereafter. It is from this position that he goes to edit *Industrial and Engineering Chemistry* and *Chemical and Engineering News* of the American Chemical Society.

Mr. Murphy married Gertrude B. Mc-



Mahon, also of Brooklyn, on February 22, 1927. There are two children, Joan Ann, 14, and Walter J. Murphy, Jr., 12. Mr. Murphy has resided in Little Neck, Long Island, for the past 16 years and maintains a summer home at Leete's Island, Guilford, Conn.

He is co-author of "Strategic Materials in Hemisphere Defense" published last fall by Hastings House. He is a member of the American Chemical Society, the Society of Chemical Industry, and the American Institute of Chemical Engineers of which he is chairman of the New York Section. He is a Fellow of the American Institute of Chemists. He belongs to the Chemists' Club of New York and the Salesmen's Association of the American Chemical Industry. He was the first individual to be elected to honorary membership of the Junior Chemical Engineers of New York in recognition of his aid and encouragement to the younger members of the chemical engineering profession. He was recently elected a member of the Corporation of the Polytechnic Institute of Brooklyn. He is a member of Pi Kappa Phi Fraternity.

Mr. Murphy will assume his new duties on or about February 1.

## GENERAL

### Score "Compulsive" Act

December issue of *Professional Engineer*, official publication of American Association of Engineers, expresses sharp disapproval of the "compulsive" features of Senate Bill 2721, the "Technological Mobilization Act," sponsored by Senator Harvey M. Kilgore of West Virginia. The measure, which was printed in the December issue of *CI*, creates an Office of Technological Mobilization and directs

it to locate all scientifically and technically trained research and development men, appraise the use being made of their Services, and to "draft all such personnel . . . failing to submit or to accept plans for immediate conversion of their efforts to work deemed more essential by the Office of Technological Mobilization." Parallel powers over all "technological facilities" (school laboratories, industrial research and development units, etc.) are also conferred.

It is asserted that despite the arbitrary

powers which the Office is directed to assume in regard to technological men and facilities, and in regard to inventions, patents and secret processes (which the Office is authorized to acquire for "reasonable" compensation and license to other producers), the Office is not given comparable powers over the activities of other government agencies engaged in research and development, and is not authorized to insure eventual utilization of its findings by the War Production Board or by the Armed Forces.

As outlined in the bill, the Office of Technological Mobilization, says the Association, follows too closely the plan of technological mobilization set up in Germany in the 10 years preceding the outbreak of war. It represented the subordination of technology to a bureaucracy rather than mobilization.

If the measures prescribed in the Act would in truth guarantee an immediate and full utilization of technological resources in the winning of the war, the professions would offer no opposition. Appraising S 2721 strictly as a war measure, the Association points out the enormous organizational difficulties involved, particularly serious because they must in some degree impede the war effort—necessitating readjustment or reorganization of many agencies, without really achieving integration. Hearings on the bill, says the Association, develop the fact that the Office of Scientific Research and Development has spent seventy million dollars, and found it necessary to restrict its efforts to a very small phase of the work allotted to the Office of Technical Mobilization, capitalized at \$200,000,000.

American Association of Engineers proposes instead free professions—integrated in state societies, in turn united in a national association—to make the full technological resources of the nation available to the war effort and to serve as a great communications network for the private enterprise system in the post war period. The national organization would be the trunk line, the state associations (making membership compulsory for all grades of engineers, architects, chemists, physicists, etc.) the branches, and all the technologically trained men the fine wires extending into every unit of the free enterprise system, to coordinate their efforts in the post war period toward the end of “maximum production, full employment.” These associations would exercise no bureaucratic control and would be independent of government, and therefore a powerful agency to guide public opinion in evaluating public works programs. They would insure to society fullest use of the judgment as well as the services of the men in whom society has a vested interest because society has subsidized their training in tax supported schools. Their integration in state and national societies would be genuine mobilization, not subordination, is the thesis of American Association of Engineers.

## COMPANIES

### Die Casting Film

The New Jersey Zinc Co., N. Y. City, last month released for the use of engineering colleges a new “purely educational” film on the die casting process. Tailored to fit the intellectual level of the average engineering student, the film

(three reels in all) is noteworthy for its lack of commercialism. Also, since not all die castings are made of zinc alloy and not all zinc alloy die castings are made with New Jersey zinc, the film is unusual in that it presents the whole story of the diecasting process and the various alloys used.

### Asphalt in “Priorities”

The story of asphalt is given in the January number of *Priorities*, house magazine of Prior Chemical Corp. Uses to which it has been put from ancient times are briefly outlined and some unique applications growing out of war developments are reported.

### An “E” for du Pont Plant

Brig. Gen. Benjamin W. Chidlaw of the Materiel Command of the Army Air Forces presented the Army-Navy “E” flag Dec. 29 to the Nylon Research Laboratory and Pilot plant of E. I. du Pont de Nemours & Company.

Addressing the employees and officials who brought nylon into being and have made it available 100% for vital military purposes, the General said the Army-Navy “E” “marks every one of you as a faithful and devoted contributor to the United Nations’ ultimate victory.”

### 1000% Explosives Expansion

Year-end report of Hercules Powder Co. discloses that the explosives department, to meet war demand, has been expanded approximately 1,000%. Report showed that all Hercules patents and technical know-how have been made available to the government without cost for the duration; that Hercules is constructing and will operate for the government ordnance factories with aggregate cost of more than \$400,000,000; and has developed and discovered important new domestic sources for scarce vital materials as well as substitutes for such materials.

### American Potash Moves

New York City offices of American Potash & Chemical Corp. have moved to the 25th floor of 122 East 42d St. Telephone is Murray Hill 5-7142.

### Nickel Sources Adequate

Reviewing the work of the nickel industry for the past year, Robert C. Stanley, chairman and president of the International Nickel Co. of Canada, Ltd., said last month that increased capacity for the production of primary nickel plus the salvage of nickel-bearing scrap and conservation efforts now provide sources of nickel which should be adequate for vital war needs.

### Trail Foreign Publications

American librarians are tracking down hundreds of publications which seep into this country from Axis-dominated areas and which contain valuable technical and

scientific data eagerly sought by the nation’s wartime researchers, it is reported by Librarian Harold Lancour of Cooper Union, chairman of the Engineering School Libraries Section of the Association of College and Reference Libraries.

Through an investigation in progress since last August, the Section has already ascertained that more than 800 periodicals published in Germany and Japan as well as in countries occupied by the Axis are reaching the United States sporadically and by devious channels, despite mailing restrictions and accidents in transit.

### Dow Gets Two “E’s”

Dow Chemical Co., Midland, Mich., Dec. 29 received the unusual honor of two Army-Navy “E” pennants.

Products of Dow, one of the world’s largest producers of industrial chemicals, are in use by every branch of the armed services. Since 1916 Dow has been producing magnesium, lightest of the light metals and prime factor in aircraft supremacy. The company likewise is well in the vanguard of synthetic rubber production with Thiokol and is the largest producer of styrene, an essential ingredient of Buna S.

Chief speaker at the presentation was Major General William N. Porter, Chief of Chemical Warfare Service, Washington, D. C.

### Bureau Lists Gains

Rounding out the first year of an intensified war program, the Bureau of Mines has made continued gains in its assignment of conserving manpower, equipment, and mineral wealth while speeding up the production of materials essential to victory—coal, metals, minerals, helium, and petroleum.

Dr. R. R. Sayers, Director of the Bureau, says the bureau has perfected metallurgical processes which are now being used to tap reserves of low-grade ores, has more than doubled the output of helium, charted millions of tons of critical, essential, and strategic ores, and launched programs to make secure the uninterrupted output of mines, smelters, quarries, and coke ovens and other facilities of the mineral industries.

Throughout the year, the Bureau worked hand-in-hand with the Army, the Navy, the War Production Board, Reconstruction Finance Corporation, Metals Reserve Company, and other agencies on special projects designed to put idle resources to work in the shortest time possible.

Outstanding among the achievements of the Bureau was the exploration work which increased by more than 32 million tons the estimated reserves of chromite, manganese, mercury, iron ore, tungsten, nickel, bauxite, and high-alumina clay—the raw materials for tanks, planes, ships, guns and other weapons of modern warfare.

## Midgley '44 ACS Head

Dr. Thomas Midgley, Jr., vice president of The Ethyl Corporation, and internationally known for his discovery of tetraethyl lead, has been elected president of the American Chemical Society for 1944.

Dr. Midgley, who is active in furthering wartime research projects, took office as president-elect Jan. 1, when Dr. Per K. Frolich, director of the Chemical Division, Esso Laboratories of the Standard Oil Development Company, Elizabeth, N. J., and a leader in the development of synthetic rubber, became president, succeeding Dr. Harry N. Holmes, head of the department of chemistry at Oberlin College.

## Sterling Absorbs Subsidiaries

Sterling Drug, Inc., absorbed 16 wholly-owned subsidiaries into the parent company Dec. 31 and made the corporation an operating company. Three new vice-presidents were elected, as follows:

Harvey M. Manss, president of the Bayer Company, Inc.; Otto W. Ergenzinger, president of the Chas. H. Phillips Chemical Company, and Harold B. Thomas, president of the Centaur Company.

In place of the sixteen subsidiaries which are to disappear the board approved the formation of the five following divisions: Bayer Company Division, Centaur Company Division, Cumer Products Company Division, Chas. H. Phillips Chemical Company Division and the R. L. Watkins Company Division.

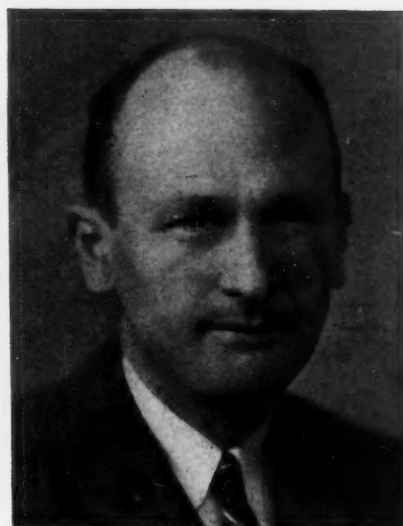
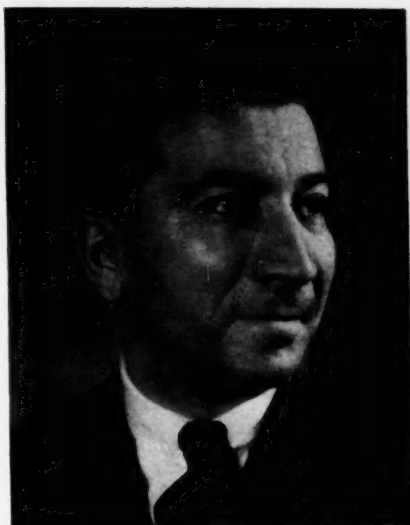
Following are the subsidiaries to be combined with the parent company: The Ayer Company, Inc., of Massachusetts; the Bayer Company, Inc., of New York, and the California company of the same name; Dr. W. B. Caldwell, Inc., of Illinois; California Fig Syrup Company of California.

Also the Centaur Company of New York, the Cumer Products Company and the Mollé Company of Ohio, the Delatone Company and the Knowlton Danderine Company of Illinois, the Ironized Yeast Company, Inc., and Proprietary Agencies, Inc., of Delaware; the Chas. H. Phillips Chemical Company of Connecticut, Sterling Drug, Inc., of West Virginia, Synthetic Patents Company, Inc., of New York, and the R. L. Watkins Company of Ohio.

## Discontinues Fellowship

Westinghouse Electric & Manufacturing Co. has discontinued "for the duration" the research fellowships awarded annually during the past five years to enable leading young scientists to continue their studies at the company's research laboratories. Concentrating on getting the war job done quickly, company informs, pure

## Promoted by Monsanto Chemical



Promotions of Dr. Nicholas N. T. Samaras (left) and Roy W. Sudhoff to assistant directors of the Central Research Department of Monsanto Chemical Company have been announced. The two research scientists have been leaders of experimental research groups in the Monsanto laboratories in Dayton, O.

research, as such, is being pursued only in instances where it helps the war effort.

## Krebs Corp. Dissolved

Krebs Pigment & Color Corp., which has been a wholly owned subsidiary of E. I. du Pont de Nemours & Co., for the past eight years, has been dissolved. In the future, its functions will be carried on by the Pigments Department of the Du Pont Company.

This change of name involves no change in the personnel of the sales, manufacturing or research divisions, nor will there be any change in the management or policies.

## Barrett Wage Increase

An agreement providing a general wage increase of five cents an hour, retroactive to July 25 was made last month between the Barrett Division, Allied Chemical & Dye Corp., and 200 employees, members of A. F. of L. Chemical Workers. Base rate for new employees was set at 81 cents an hour.

## du Pont Gets Safety Award

A special award of honor "for distinguished service to safety" was presented Jan. 4 to E. I. du Pont de Nemours & Co. by the National Safety Council.

The award was announced by Colonel John Stilwell, president of the Council, and head of a nation-wide campaign conducted at the request of President Roosevelt, to "save manpower for warpower." It was accepted by Walter S. Carpenter, Jr., president of the company. The ceremony took place on the Cavalcade of America radio program.

## New Magnesium Plant

New magnesium plant of International Minerals & Chemical Corp. in Texas is the third large magnesium plant designed and built by the Austin Co., engineers and builders, to enter production since Pearl Harbor. All three were built with funds provided by the Defense Plant Corporation and use the Dow process.

## On 45-Hour Week

Employees of Hoffman La Roche, Inc., Nutley, N. J., went on a 45-hour week basis this month in accordance with approval received from the Wage Stabilization Bureau, Washington, D. C.

Permission was granted on the basis of the increase in medicinal products and vitamin production the company has accomplished to fill large government orders. Workers making under \$5,000 a year will receive time and a half overtime for the added five hours on their schedule. The extra time is being added by a four and a half hour working day Saturday and a reduction in lunch time.

## Hooker to Expand

Hooker Electro-Chemical Co., Niagara Falls, N. Y., it is reported, has made a contract with the Defense Plant Corporation to provide additional plant facilities in the State of Washington at an overall cost of more than \$200,000. Company has a plant at Tacoma.

## Cooper Offers Women Courses

Adoption by the Cooper Union Engineering School, N. Y. City, of a new admissions policy under which women

may take an abbreviated college engineering course to fit them for specific jobs in industry has been announced.

### Awarded Perkin Medal



**Dr. Robert E. Wilson**

Revision to the "dark ages of secret processes" will be the inescapable outcome of emasculating our patent system to deprive inventors of adequate reward for disclosure of their discoveries, Dr. Robert E. Wilson, president of the Pan American Petroleum and Transport Company, New York, declared Jan. 8 in an address on "Research and Patents" following the presentation to him of the 1943 Perkin Medal of the American Section of the Society of Chemical Industry.

The medal was awarded to Dr. Wilson for outstanding industrial research studies at a joint meeting of the Society, the New York Section of the American Chemical Society, the American Institute of Chemical Engineers, the Electrochemical Society and the Societe de Chimie Industrielle at the Hotel Commodore.

Dr. Wilson was formerly director of research at the Massachusetts Institute of Technology, research director in the Chemical Warfare Service, and research director of and later in charge of development and patents for the Standard Oil Company of Indiana. He was named part-time director of General Aniline and Film Corporation after its seizure by the Alien Property Custodian. Dr. Wilson is a director of the American Chemical Society.

He is the inventor or co-inventor of ninety patents in a variety of fields. His research studies have dealt with the flow of fluid, oiliness, corrosion, motor fuel volatility, cracking and many other oil refining processes. His industrial contributions have been mainly in the fields of petroleum cracking, lubrication and adaptation of chemical engineering principles to the oil industry.

The 37th impression of the Perkin Medal, awarded annually for outstanding work in applied chemistry, was presented to Dr. Wilson by Dr. Marston T. Bogert, professor emeritus of Columbia University. Dr. Thomas Midgley, vice president of the Ethyl Corporation and president-elect of the American Chemical Society, spoke on "The Personal Side of the Medalist." Dr. Walter G. Whitman of the Chemical Branch of the War Production Board discussed "The Accomplishments of the Medalist." Dr. Foster D. Snell of Brooklyn presided at the meeting, which was preceded by a dinner at the Hotel Commodore. (See p. 70 for picture.)

### Creates Reserve Fund

Freeport Sulphur Co. has created a reserve fund to help provide post war jobs for its employees now in the armed services, Langbourne M. Williams, Jr., president, announced in the January issue of the company's employee magazine, "The Freeporter," which goes to employees on military furlough as well as those on the active rolls.

An article in the magazine accompanying Mr. Williams' statement declared that the company is in a good position to meet the uncertainties of the post war period.

### Reichhold Opens N. Y. Office

Reichhold Chemicals, Inc., Detroit, Mich., officially opened new offices in N. Y. City, Jan. 15, in the RCA Building at 30 Rockefeller Plaza. Sales and purchasing departments for their Elizabeth, New Jersey plant and the Eastern section of the country, as well as the company's export department will be housed there.

E. A. Terray, Assistant Treasurer of RCI, will be in complete charge.

Other recent expansion activities of RCI include the opening of a new resin-making plant at South San Francisco, California, and the construction of a chemicals producing unit at Tuscaloosa, Alabama, which will begin production about the middle of April. The South San Francisco factory is being operated under the direction of M. W. Reece and Carl B. Fritsche will be in charge of the Tuscaloosa plant.

### Gets "E" Award

Brig. Gen. Trelawney Marchant, Fifth Service Command, presented the Army-Navy "E" flag to the Belle Works of E. I. du Pont de Nemours & Co. at a ceremony in Charleston, W. Va., Jan. 14. Lieutenant Commander G. H. Crocker, U. S. N. R., Executive Officer, U. S. Naval Ordnance Plant, South Charleston, presented the "E" pins for the employees.

### Technical Writers Wanted

The Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, at Madison, Wis., needs technical writers with a chemical or engineering background or considerable training in physics. The laboratory is engaged on an extensive research program in cooperation with the Army and Navy. Present staff of technical writers is inadequate to handle the increased volume of work involved in making the technical reports.

All appointments to this work are under Civil Service and are War Service appointments limited to the duration of the war. Those who have the necessary education and experience but lack a Civil Service rating can obtain eligibility through a special arrangement.

Those interested should write to Harvey J. Loughhead, acting personnel officer.

### Buys Container Co.

Continental Can Co., Inc., has purchased the entire capital stock of the Container Co., Van Wert, O. Assets and business will be merged with those of Continental Can and the present business continued at the Van Wert plant. There will be no changes in management, personnel or policies.

### Honor Monsanto Founder

In honor of the memory of the founder and first president of Monsanto Chemical Co., the board of directors of Monsanto has decreed that the St. Louis plant of the Organic Chemicals Division of the company will henceforth be known as the John F. Queeny plant. The announcement was made at the ceremony at which the plant received the Army-Navy "E" Production Award.

### Captured by Japs



Second Lieutenant James D. Lynch of the United States Army Corps of Engi-

neers is a prisoner of the Japanese in the Philippines, his mother, Mrs. Lillian D. Lynch of Watertown, N. Y., has been informed in a telegram received from the Adjutant General, Washington, D. C.

Lieutenant Lynch was a member of the advertising department of Monsanto Chemical Co. in St. Louis prior to being called to active duty in the Corps of Engineers in the summer of 1941.

The 23-year-old officer was with the American forces on Bataan Peninsula, where he was in command of a demolition platoon of Philippine scouts. Whether Lieutenant Lynch had reached Corregidor is not certain, but he was known to have been located on Bataan and it is assumed that he was taken prisoner there. No word has been received as to the exact prison camp in which he is located.

Lieutenant Lynch was a chemical engineering graduate of Clarkson College of Technology Potsdam, N. Y., where he was a member of the R.O.T.C. He was

employed at Monsanto until July, 1941, when he was called to active duty at Fort Leonard Woods, Mo. Volunteering for foreign service, he sailed from San Francisco in October, 1941, and arrived at Manila November 20, where he was first assigned to an engineering detachment engaged in the construction of bridges and highways.

The last communication from him was dated Dec. 27, 1941, and was received April 7, 1942, by a former Monsanto associate. The letter stated that he was retreating to a natural peninsula on the island of Luzon and was engaged in demolition duty to destroy sugar and oil refineries so they could be of no value to the Japanese.

His letter indicated his platoon had mined important factories with explosives and that as he was writing he was waiting for an order from his commanding officer to push the plunger and blow up the plants in his section.

lots), flour mill, rayon, oil refinery, synthetic rubber, steel, aluminum, coal mine, and public highway industries.

In addition to war production, the J. B. Ford Division, will cover dairies, laundries, bottlers, metal cleaners, hospitals, institutions, brewers, railroads, and other industries not specifically assigned to Michigan Alkali Division and will continue to promote the sale of Wyandotte cleanser for home use. Both divisions will call on textile and railroad customers.

The Michigan Alkali Co., one of the largest producers of soda ash, caustic soda, chlorine, dry ice, calcium carbonate, bicarbonate of soda, and other chemicals used in virtually all industries, was established 52 years ago.

The J. B. Ford Company was created in 1898.

## ASSOCIATIONS

### Rubber Group Celebrates

Chicago Rubber Group annual dinner dance was held Dec. 18 at the Morrison Hotel, Chicago. About 325 members, wives and guests attended. Committee which arranged the Christmas party included: James P. Sheridan (New Jersey Zinc Sales Co.), Chairman Robert C. Gunther (Inland Rubber Co.), Co-chairman; Daniel Siefer (Diamond Wire & Cable Co.), George Gates (Victor Mfg. & Gasket Co.), J. T. Adams (Sears Roebuck & Co.), Wm. Crumpler (George Me-phan Co.).

At the next meeting to be held Feb. 12, Dr. Arthur M. Neal, E. I. du Pont de Nemours, will speak on Accelerators and Buna S (synthetic rubber).

### Power Conference Set

Midwest Power Conference arranged by Illinois Institute of Technology will be held at the Palmer House, Chicago, April 9 and 10. C. W. Kellogg, president of Edison Electric Institute, N. Y. City, will be the keynote speaker.

### Brand in S. A.

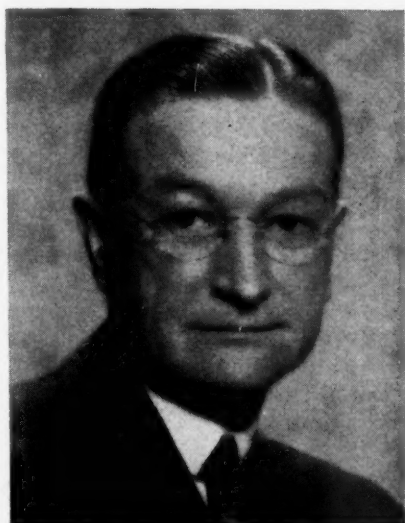
Upon invitation of the Ambassador of Chile, Charles J. Brand, secretary of the National Fertilizer Association, attended the Fourth South American Congress of Chemistry at Santiago Jan. 5 to 12. Major part of his three weeks visit was devoted to a study of nitrogen and the nitrate industry.

### L. A. Paint Club Meets

Fifty-eight members and guests were present at the regular meeting of the Los Angeles Paint and Varnish Production Club Dec. 9. Speaker of the evening was Dr. R. B. Stringfield, chief process engineer of Vultee Aircraft Co., who spoke

### Michigan Alkali Co.

### Becomes Wyandotte Chemicals Corp.



I. H. Taylor



Bert Cremers

Michigan Alkali Co., and its affiliate, the J. B. Ford Co., have consolidated as one company to be known as Wyandotte Chemicals Corp. Consolidation was effective Jan. 1.

E. M. Ford, formerly vice-president and treasurer of Michigan Alkali Co., is president of the new corporation. Consolidation will entail no change in ownership nor will any new personnel be included in management. It is being effected, he said, solely in the interest of more efficient operation and distribution. E. M. Ford occupies the position which was to have been assumed by his father, E. L. Ford, grandson of Captain John B. Ford, founder of the business.

F. S. Ford and W. F. Torrey are vice

presidents of the new corporation; Ford Ballantyne is secretary and treasurer. Other officers are: S. T. Orr, vice president in charge of manufacturing; I. H. Taylor, vice president in charge of sales; G. W. Schwarz, controller; C. B. Robinson, vice president in charge of sales J. B. Ford Division; and Bert Cremers, vice president in charge of sales Michigan Alkali Division.

Sales departments of both companies will temporarily maintain their separate identities as divisions of Wyandotte Chemicals Corp., whose production is largely devoted to war effort and essential civilian needs. In addition, the Michigan Alkali Division will be responsible for sales in the glass, soap, paper, chemicals (carload

on the industrial development of natural and synthetic rubbers.

### Tappi Sets Feb. Meeting

Technical Association of the Pulp and Paper Industry has scheduled a four-day convention Feb. 15-18 at the Commodore Hotel, N. Y. City. More than 1,000 are expected to attend to discuss wartime technical problems. Particular emphasis will be paid to the progress toward relieving the critical materials shortages by the development of new packaging materials and containers.

An exhibit will dramatize these new developments, the association has announced. Companies who want to display should write to R. G. Macdonald, secretary of the association, at 122 East 42d St., N. Y. City. There will be no charge for use of space.

### Coghill Addressed Chemists

Dr. Robert D. Coghill, chief, fermentation division, Northern Regional Research Laboratory, Peoria, Ill., was speaker at the Jan. 11 meeting of the Midwest Section, American Association of Cereal Chemists in Chicago. He presented the latest information on fermentation as a tool in the use of farm products.

### Entertain Orphans

Eleven orphans from the Atlanta Child's Home were guests of the recently organized Atlanta Drug & Chemical Club at a Christmas celebration that ranged all the way from a day of shopping, visits with Santa, presents, and all the turkey they could eat, to a final program of entertainment planned especially for their enjoyment.

### Michigan Group Elects

Allied Drug & Cosmetic Association of Michigan elected the following officers for 1943: President, William M. Russell, Monsanto Chemical Co.; Vice-president, E. E. Van Allsburg, Ecclestone Chemical Co.; Secretary, M. G. de Navarre, Maison G. de Navarre Associates; Treasurer, Stewart Cowell, J. T. Baker Chemical Co.; Executive Committee, A. S. Bedell, Beauty Counselers, Inc.; D. Melville, Frank W. Kerr Co.; G. Snider, Commercial Solvents Corp.; A. R. Vicary Mark W. Allen & Co.

### Other Meetings

Baltimore Paint & Varnish Production Club met at the Belvedere Hotel Jan. 8. Changes in Specification T1279 were discussed at a round table under the direction of Herman Shuger.

Winter meeting of the Akron Rubber Group will be held Jan. 22 at the Akron

City Club, Akron, O. P. F. Robb, Hercules Powder Co., will speak on "Modern Plastics."

## PERSONNEL

Joseph J. Mattiello, technical director, Hilo Varnish Corp. is giving half of his time voluntarily to the Office of the Quartermaster General, Washington, D. C., advising, consulting, assisting in drawing of new specifications and in the procurement of needed supplies in

the Plastic and Protective Coating Section.

W. Roy Widdoes has been named director of personal relations for Lukens Steel Co., Coatesville, Pa., succeeding Charles L. Huston, Jr., who recently was made assistant to the president . . . Benjamin F. Pepper has been elected president of Triumph Explosives Co., Elkton, Md. . . John S. Zinsser, president of Sharp & Dohme, Inc., has been elected a director of J. P. Morgan & Co., Inc. . . Edwin

### Dr. Eric Kanz Writes on Patent Question

(continued from page 33)

simple and clear. It seeks to create a monopoly, for a limited period of time, for inventors to exploit their inventions, and in so doing gain an advantage therefrom.

Though such a principle may be simple and easy to understand for those who want to understand it, it almost looks as if, from the very day our forefathers had written this clause into the Constitution, an army of "wise men"—lawyers—have devoted their time, their energies and their money to combatting this very principle, and to distorting the executive and administrative end of the patent system in such a way as to partially or entirely nullify whatever the Constitution had granted to an inventor in the form of special privilege.

The Commissioner of Patents is reported to have said sometime ago, when testifying before a Senate Committee, that only fifteen per cent of all patents granted in the United States are ever used, and furthermore that only about fifteen per cent of patents granted would be considered valid in a court of law.

One of the reasons for this condition is that a good many patents applied for and granted do not cover an invention. They are so-called protective patents. They are not really conceived by the true scientist in the laboratory, but rather by the patent lawyer, hired not for the purpose primarily of upholding the Constitution, but whose first and foremost duty is to gain an economic advantage by means of letters of patents on a given subject for his client.

Let us take the case of a process patent. Process patents in the United States are given to anybody on the basis of a thought, a suggestion, a pretension or a statement, provided that the basic thought advanced in the claims of such a patent cannot be found in writing in any of the available, internationally distributed, technical literature. In order to uphold the spirit and the letter of the Constitution, it would be necessary for the Patent Office to try to repeat, in a laboratory, the claims made in any process patent application.

We know of innumerable chemical

process patents whose claims far exceed the actual results obtainable in the laboratory by a chemist familiar with the art, who follows the description and disclosures made in the patents with meticulous care.

This condition exists for the very reason that exaggerated, impossible, untrue claims can be made the basis of a process patent, under the United States patent system, because the patents are not tested, and the so-called inventor knows this. Furthermore, he is sure that the Patent Office will not find any similar disclosure in the literature because his claims are false, untrue, and cannot actually be obtained. Yet thousands of such patents are in force today, preventing many true inventors from obtaining the grant made in Paragraph eight, Section eight, of our Constitution, and preventing many enterprising, smaller industrial factors from exercising their rights as citizens.

These protective patents, therefore, handicap industry as a whole; they are unpatriotic, and should be exposed as such and their right to existence denied.

We, therefore, very strongly favor for the chemical industry a system whereby all patent applications are tested by chemists competent in the art, with the inventor naturally having the right to prove his point in case the government chemist, for one reason or another, should be unable to substantiate the claims made in any given paragraph.

### Would Outlaw Many

If this procedure were to be followed, a great many applications now in preparation would never be made, because in testing a patent, the Patent Office would then be in a position to decide conclusively whether a given application, a given claim, actually does "promote the progress of science."

Of course no protective patents actually "promote the progress of science," because their claims are based on untrue and false pretenses, which the Patent Office today is not allowed to judge or to expose.

(Continued on page 107)

**Rightmire**, Mallinckrodt Chemical Co., was elected secretary and assistant treasurer of the Jersey City Executives Club at a recent meeting.

**Frederick J. Dunkerley**, a graduate of Thiel College and the Carnegie Institute of Technology, has been appointed to the research staff of Battelle Memorial Institute, Columbus, Ohio, where he has been assigned to war research in metallurgy.

**W. I. Galliher** has been appointed executive sales manager of the Columbia Chemical Division, Pittsburgh Plate Glass Co. Mr. Galliher, formerly director of sales, succeeds **Eli Winkler**, who is now executive consultant.

**Ernest Segesseemann** is now associated with Fine Organics, Inc., N. Y. City, as technical director and vice-president, it has been announced by **Nicholas Molnar**, president. For the past 17 years he was chief chemist of production research for National Oil Products Co.

**W. S. Thornhill** has been transferred from the laboratories of Shell Development Co., Emeryville, Calif., to the Shell Bldg., San Francisco, where he will be engaged in market development work.

**David S. Stoker**, a graduate of Indiana University, has been named to the research staff of Battelle Memorial Institute, Columbus, O., and has been assigned to its division of analytical chemistry.

**Lawrence A. Appley**, vice-president of Vick Chemical Co. has been appointed chief of the War Manpower Commission's Bureau of Placement. He will have authority over the functions of the U. S. Employment Service, and will be in charge of industrial, agricultural, professional, and government employment. The transfers of workers will come under him.

**Hugh M. Besheres**, formerly chief of the project service branch of WPB's Construction Bureau has been appointed chief of the heat exchanger branch of the General Industrial Equipment Division. Branch covers industrial equipment used in transferring heat from one fluid to another without intermixing the two fluids. Exchangers are used principally in petroleum, rubber and power plants.

**J. F. M. Taylor** and **H. Bloemgarten** have been appointed vice-presidents of the Shell Oil Co., Inc., east of the Rockies.

**Charles Alexander**, associated for the past 10 years with Seldner & Enequist, joined L. Sonneborn & Sons Jan. 11. He will cover Northern New Jersey and New York State for the company.

**E. W. Haley** has been appointed assistant director of sales for Southern Alkali Corp.

**B. DeLorenzo**, formerly with the Foster Wheeler Corp., has been appointed manager of the heat transfer department of Brown Fintube Co., Elyria, O.

**J. D. Shaw**, formerly research and production engineer with Metals Disintegrating Company, has joined Aircraft Parts Development Corporation, Summit, N. J., as chief powder metallurgist.

**Donald J. Hardenbrook**, recently appointed post war planning manager of Union Bag & Paper Corp., has now been made assistant to the president of the company, Alex Calder.

**W. A. Cleneay**, formerly with the engineering staff of Monsanto Chemical Co. at Texas City plant, has been transferred to St. Louis to head coordination of the company's activities relative to camouflage, blackouts, and air raids . . .

**Edwin R. Campbell**, also from the Texas City plant, has been transferred to St. Louis to head the salvage and surplus equipment section of the general engineering department . . . **Milton Welhoelter**, mechanical engineer at the Nitro, W. Va., plant, has been transferred to the process engineering division of general engineering and is assigned to the Texas City plant to make a special study of certain phases of this operation . . . **Ogden Fitz Simons**, who just recently joined Monsanto, has been assigned to the process engineering division of the general engineering department and initially will be at the Central Research laboratories in Dayton to assist with the chemical engineering phases of a new process now being developed under the direction of **Miles Maxim**, temporarily assigned to the engineering department for this project . . . **Lester Heering**, who has been working in the salvage department at St. Louis, was transferred to the operating organization at Texas City where he will act as technical assistant to the operating engineer in charge of the power plant.

**James L. Caruth** has been made manager of Pacific Coast operations for the National Lead Co.

## OBITUARIES

### Robert R. Criswell

Robert V. Criswell, former second vice-president of Triumph Explosives, Inc., died Jan. 7 in Philadelphia after an illness of several months.

### Emory L. Ford

Emory L. Ford, 66, president of the Michigan Alkali Co., Detroit, Mich., died Dec. 20 at the Jennings Hospital after a brief illness.

### Livingston P. Moore

Livingston P. Moore, 67, died Dec. 23 at his home in Summit, N. J., on his 26th anniversary as president of Benjamin Moore & Co., N. Y. paint manufacturers.

### Charles L. Gulick

Charles L. Gulick, 67, chief consultant on gas cylinders for the War Production Board, died Dec. 20 of a heart attack. His home was in South Orange, N. J.

### S. E. Van Branken

Stephen E. Van Branken, 55, vice-president and general manager of the Soap & Chemical Co. of Pittsburgh, died Dec. 26 after a heart attack.

### Frank J. Roosa

Frank J. Roosa, 86, president of the Roosa & Ratliff Chemical Co., Cincinnati, died Dec. 25.

### Alexander Treem

Alexander Treem, foreman for Samuel Cabot, Inc., Boston, over 20 years, in charge of the stain and paint departments at the Chelsea, Mass., factory died at his home in Medford, Mass.

## WASHINGTON

(Continued from Page 8)

exportation, but there are certain modifications in favor of both manufacturer and exporter.

Near the middle of this month (January) it is expected that progress reports will be ready on a movement started around the end of the year to assure adequate supplies of copper chemicals for essential agricultural needs. Again, it may be recalled that an earlier issue contained a Between the Lines reference to this problem as it has affected Axis interests. The copper shortage in this country now makes the situation abroad relatively more interesting. The program contemplates, in this country, probably the use of lower grades of copper scrap in producing copper sulfate, and utilization of supplies of copper sulfate which formerly were exported to Latin America, but will be held here by shipping conditions. The Chemical Division of WPB is likewise actively moving to assure proper supplies of arsenical insecticides for agriculture, meeting requirements of the United States, Canada, and Latin America proportionately.

# CHEMICAL SPECIALTY COMPANY NEWS

## Some Notes on Saponification

**A**LTHOUGH the basic principles of saponification are a matter of common knowledge," says the December issue of *Schimmel Briefs*, monthly publication of Schimmel & Co., Inc., N. Y. City, "what actually takes place during this process does not always seem clearly understood and we feel that a discussion of this subject might be of interest.

"The primary processes used in soap manufacture are, of course, the boiling process and the so-called cold process. The latter method requires highly concentrated lye whereas the former, which is the one primarily used, utilizes weak lye or lye of medium concentration.

"In the boiling process the saponification of the fats is achieved through intimate contact of the fats and lye and the formation of an emulsion.

"At the beginning of the reaction some soap should be in the kettle, which will form easily when fats with high acid content are used. The saponification takes place in several phases which are termed emulsion-saponification, rapid-saponification, and final-saponification. During the first phase the saponification progresses slowly until the heterogeneous mass turns suddenly homogenous, at which point the rapid saponification begins. The emulsion disappears and the fats and lye dissolve in the soap. This unification already takes place upon saponification of 10 to 20% of the fats present. In case of slowly progressing saponification, or in the presence of too highly concentrated lye, this unification will form with difficulty. In such cases the reaction will be facilitated by the addition of soap, the dilution of the lye, or by allowing the contents of the kettle to stand for a while. Even after the completion of the rapid-saponification small quantities of natural fats remain, the complete saponification of which requires additional boiling. This saponification therefore takes place during the final reaction phase. A boiling period of from one to two hours after the last addition of fats should generally be sufficient to complete saponification down to .1%.

"While the saponification in the boiling saponification is achieved in an emulsion of fats in aqueous soap, cold process saponification is achieved in an emulsion

of the water-in-oil type. Water-in-oil emulsions are only formed in highly concentrated or metallic soaps and the cold process therefore requires highly concentrated lye (38° to 45°). The soap which is thus formed at low temperatures, the lowest degree of which is dependent on the solidification point of the fats used, is highly concentrated and hydrophobic. The soap dissolves in the fats while the excess lye remains emulsified in the form of finely dispersed droplets within the fat.

"Cold process saponification begins by agitating the liquefied fats with concentrated lye. From the very start the final quantities of fats and lye must be mixed as later corrections are not possible. During cold process saponification important changes take place in the soap mass. At a certain period the type of emulsion is changed and the fats-in-lye emulsion turns into the much more stable lye-in-fats emulsion. With this change of emulsion

type, the speed of saponifications increases and a new phase, the rapid-saponification phase begins, generating considerable heat. The entire reaction ends with a period of final saponification, during which the speed of saponification diminishes rapidly with the decreased concentration of the reacting ingredients."

## To Handle D & R Paints

Montgomery Ward has become a new distribution channel for the products of Devoe & Reynolds Co., Inc. under an agreement permitting the company to list and handle selected first-grade consumer products.

## New House Organ

Publication of a new house organ—"Hormone-Tones"—has been announced by the American Chemical Paint Co., Philadelphia. It will go each month to dealers, experiment station workers, laboratory technicians, etc., for the purpose of informing the trade of the merchandising and uses of the plant hormone products made by the company.

## No More Paints

Lansing Paint & Color Co., Lansing, Mich., has discontinued the manufacture of paints and varnishes for the duration of the war in order to make available additional space to carry out war contracts with the government.

## New Type Anti-Fog Lens Pencil



To help keep safety goggle lenses from fogging, American Optical Co., Southbrige, Mass., announces this new type of anti-fog lens pencil. New compound adds to the efficiency of men working in steamy surroundings. Pencil itself lasts a long time without crystallizing and crumbling.

# Tri-Sure News

NUMBER 1 ★ 30 ROCKEFELLER PLAZA, NEW YORK, NEW YORK ★ JANUARY, 1943

## OUR NEW MONTHLY NEWS BULLETIN

WITH the New Year we are introducing a new service in the form of a Monthly News Bulletin, of which this is the first.

In this we intend to include all news of special interest to the Industry, including orders which are issued from time to time by the Government, for the special benefit of those of our friends who do not receive this service direct.

The General Exceptions to Conservation Order M-11-b amended November 26th, 1942, are given in this column, in view of a misunderstanding which arose when this order was first issued. With these exceptions, in as much as zinc plugs are in list A-1, (as amended November 26th, 1942), the manufacture of these, when ordered by a Government Agency as mentioned in the order, is permissible.

Such information as this will, in the future, comprise the majority of the Bulletin.

We shall be pleased to receive your suggestions and remarks on this service and trust that you will find it useful and a convenience.

### Conservation Order M-11-b as Amended November 26, 1942.

This order on the prohibition and restriction of the use of zinc includes the following paragraph:

(c) *General exceptions.* The prohibitions and restrictions in paragraphs (a) and (b) shall not apply to the use of zinc in any item which is being produced:

(1) Under a specific contract or sub-contract covering the manufacture of any product, or any component to be physically incorporated into such product, produced by or for the account of the Army or Navy of the United States or the United States Maritime Commission, the War Shipping Administration, the Civil Aeronautics Authority, the National Advisory Committee for Aeronautics, the Office of Scientific Research and Development, or for any foreign country pursuant to the Act of March 11, 1941, entitled "An Act to promote the Defense of the United States," (Lend-Lease Act) to the extent required by specifications, including performance specifications, applicable to the contracts, sub-contracts or purchase orders of these organizations.



Courtesy of Press Association

Australian version of "roll out the barrel." Troops bring ashore gasoline drums dropped from a supply ship in New Guinea.

## TRI-SURE ON ALL FRONTS

In designing the Tri-Sure Closure, the fact was taken into consideration that it would be used in all parts of the world, in all climates and under all conditions.

At the present time, wherever there is fighting, Tri-Sure is sure to be there. In Alaska, Australia, North Africa, Guadalcanal, Libya, from the steaming swamps and jungles of the tropics to the frozen wastes of the Aleutians, drums and containers, with Tri-Sure Closures, are exposed to the elements with safety until they are used in refueling planes, tanks, jeeps, P. T. boats and every other vehicle that is used in modern warfare.

The little cap with its important job is becoming a familiar sight to those who handle these drums and containers.

Inasmuch as the drum is virtually hermetically sealed, it is impossible for foreign matter in the form of rust or water to percolate into the contents. This is an all-important factor, as was proved in the case of Lt. Bulkeley when his fuel was sabotaged in Mindanao, for without chamois, fuel can be poured directly from Tri-Sure containers into the tanks of the vehicles without fear of it including foreign matter.

This is a vital necessity in modern war when planes, P. T. boats, tanks and other weapons rely on the quality and purity of the fuel they consume for their performance and smooth running. The fitting of Tri-Sure Closures eliminates any possibility of the fuel being deteriorated by the elements or sabotage.

Continued in column three

Continued from column two

We, in our small way, are helping those boys who go out on important missions, whether in planes or P. T. boats, to "Come Back" by guaranteeing to them that the fuel in their tanks when taken from Tri-Sure sealed containers is "as specified."

## OUR ANNUAL PARTY

SUCCESS in capitals can be entered alongside the entry on our party at the Waldorf Astoria on Friday the 11th of December.

More than 700 attended and from the letters received since it appears everyone thoroughly enjoyed himself.

It was extremely gratifying to see so many men in the uniforms of the United Nations Forces. There were representatives from all parts of the United States, Canada, New Zealand, Australia and Great Britain, while one party consisted of men recently returned from foreign ports where they had landed after being torpedoed.

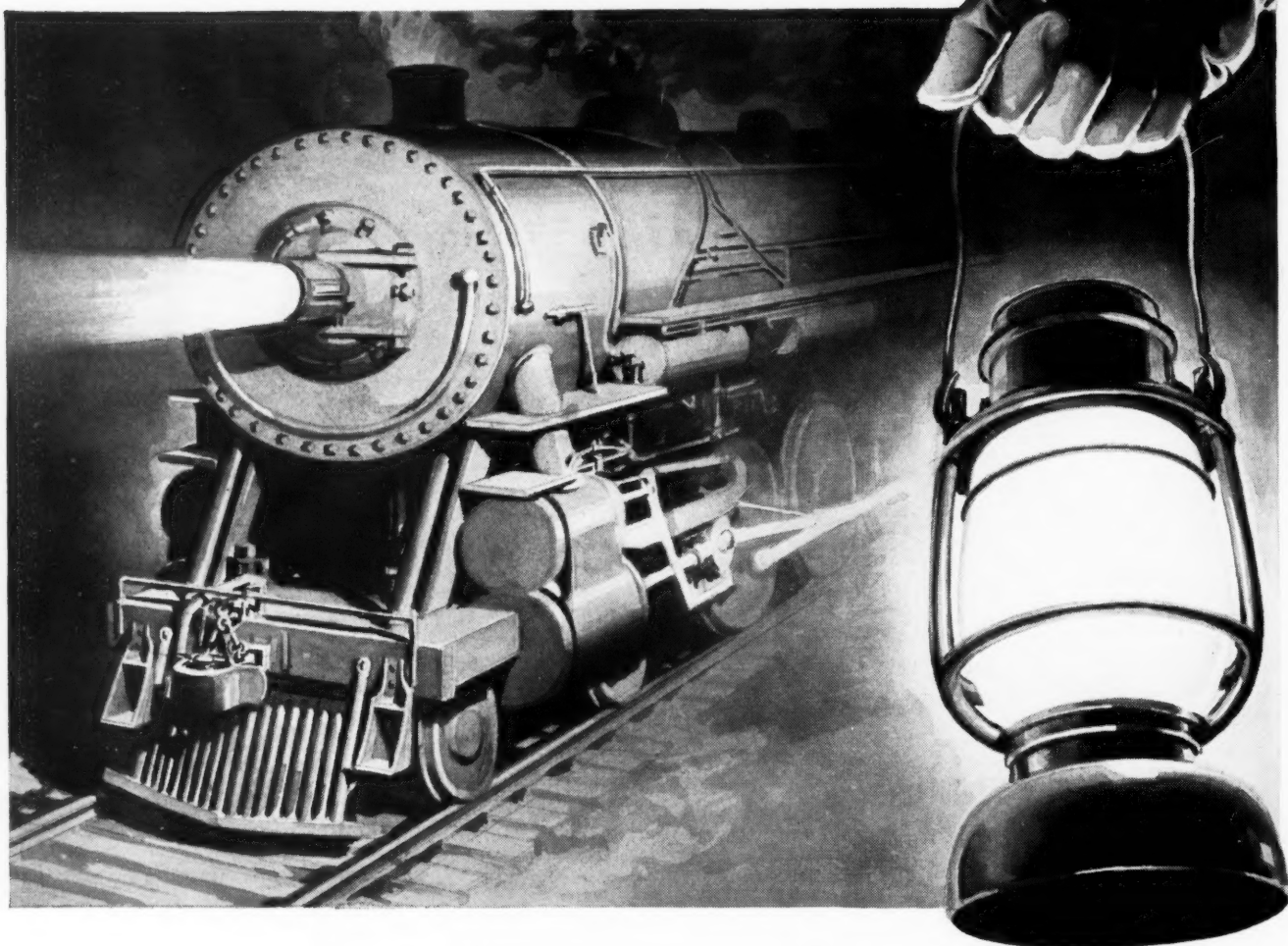
From remarks passed by these men and from the way they entered into the spirit of the party it is apparent that they thoroughly enjoyed themselves.

Let us all hope that the next party will be a Victory party, at which time we are looking forward with sincere pleasure to meeting all our friends again.

AMERICAN FLANGE & MANUFACTURING COMPANY INCORPORATED

TRI-SURE PRODUCTS LIMITED, ST. CATHARINES, ONTARIO, CANADA

# What's ahead?



Like the trains that form her life-line, the America of a new year gathers speed as the first mile is passed. The track is straight, the wheels are strong; and aboard is a treasure—for every signal, every safety device to protect. Part of it is the oil, the gasoline, the priceless chemicals that comprise America's liquid ammunition. And into the hands of those who produce it is given its guardianship—to protect it as zealously as it was produced. Just as yours is the pride of making this, America's liquid treasure, ours is in helping to safeguard it—with closures that make every drum a fortress, and every questioning "what's ahead?" quickly answered "safety."

Call to mind the hazards a drum can encounter—leakage, waste, pilferage and sabotage—and you sum-up the complete protection of Tri-Sure Closures. These are the closures that give *triple protection*—with a seal, a plug and a flange that keep every hazard out of a drum and every drop of its contents in.

Today, when liquids that are more precious than ever are being transported and stored under conditions more hazardous than ever, Tri-Sure has answered the call for closures that really seal and really protect; for closures that make every shipment a safe shipment; for closures that keep the drums rolling—safely.

**Tri-Sure**  
Reg. U.S. Pat. Off.

**CLOSURES**

AMERICAN FLANGE & MANUFACTURING CO. INC., 30 ROCKEFELLER PLAZA, NEW YORK

TRI-SURE PRODUCTS LIMITED, ST. CATHARINES, ONTARIO, CANADA

## What Some Year-End Statements Reveal

By H. S. Wherrett

**Pittsburgh Plate Glass Co.**

THE first year of the war has seen the Pittsburgh Plate Glass Co. become a large supplier of paint, glass, and chemicals to the armed forces; expend considerable sums of money for increased facilities incidental to war demands; continue to maintain research work; and, at the same time, meet without serious difficulty the restricted civilian demand for its goods.

This change from normal peace-time to war-time business has been accomplished with a minimum disturbance to operating schedules despite uncertainties, shortages in raw materials, and the induction of almost 2,000 of its employees into the services.

Paint products in hundreds of varieties in seven company factories, are essential for every type of war production. Paint is used chiefly for protection, but often also for camouflage, of every type of war implement including aircraft, tanks, and trucks, every ordnance, and munition, besides Naval vessels and ships of the Merchant Marine. Other war demands

for paint include tents, cantonments, and supply buildings, as well as the maintenance requirements of all types of factory buildings in many essential industries. . . .

The products of the chemical division, soda ash, caustic soda, liquid chlorine, etc., supply basic raw materials to a variety of industries such as glass, soap, glass containers, textiles, rayon, reclaimed rubber, aluminum, and other non-ferrous metals; pulp and paper, chemicals and a host of others. Many of these industries are now engaged in the all-out war effort. Such war industries as ordnance plants, producing the powder and T.N.T. for bombs and shells, consume some basic alkalis. Liquid chlorine and calcium hypochlorite are under complete allocation by the WPB in serving war needs.

. . . The company has encouraged and enlarged its research activities. Already results are evident, particularly in plastics and in the improvement of oils for paint and varnish vehicles. As soon as such work can leave the laboratory, the knowledge is made available for the common good, whether for the immediate purposes of war or for the even broader demands of the peace to come.

By Langbourne M.

**Williams Jr.**

**Freeport Sulphur Co.**

AMERICA begins the year 1943, its second year of global war, with a substantially greater above-ground supply of one of its most widely used industrial raw materials, sulfur, than it had at the time of Pearl Harbor.

Despite unprecedented domestic sulfur consumption in 1942, sulfur production more than matched demand. The output of Gulf Coast mines set an all-time record estimated at 3,500,000 long tons, about 400,000 tons higher than the previous peak. As a result, stocks of mined sulfur are now larger than ever.

These stocks, which total more than 4,000,000 tons at the mines alone, were increased even though the requirements of war industry for sulfur rose to a new high. A comparison of sulfur consumption with that of other materials provides a measure of its extensive participation in wartime production. Ton for ton, the nation in 1942 took about three times as much sulfur as aluminum, nearly three times as much as rubber, two and a half times as much as lead, three times as much as zinc, and 34 times as much as magnesium.

The demands for sulfur, moreover, were met at no increase above pre-war base prices. Well before price ceilings were set, voluntary pledges not to increase sulfur base prices were given to the OPA.

. . . During 1942 sulfur not only con-

tinued to supply such essential industries as petroleum refining, steel, fertilizer, paper, paint, rayon and chemicals but also played important roles in such wartime indispensables as synthetic rubber, aviation fuel and explosives.

In synthetic rubber, sulfur's age-old versatility as a chemical agent is again being demonstrated. Sulfur in crude form is an essential ingredient, of course, in vulcanizing natural rubber, about 1½ per cent of sulfur being added in the vulcanization process to impart the necessary qualities of wear resistance and strength. With the supply of natural rubber in the Far East cut off, America must turn now to synthetic rubber, and sulfur has been disclosed to be essential in the production of the principal synthetic in the Government program.

. . . In the growing production of aviation fuel, sulfur participates in the form of sulfuric acid in the alkylation process. During 1942, additional uses in other petroleum refining operations for the spent acid from this process were developed. While production figures no longer are made public, it is apparent that one of the anticipated difficulties, disposal of dilute acid, has been met in part, thus further strengthening sulfur's position in this field.

In the explosives expansion, a significant feature has been the remarkable degree to which sulfuric acid use has been organized so that the acid is used not once but several times. The used acid from the original operation is reconcen-

trated and fortified, the strong acid going back into explosives manufacture and the weaker acid being diverted to steel pickling and fertilizer manufacture. This accomplishment has been made possible by the splendid cooperation of sulfuric acid manufacturers and consumers with Government officials.

. . . America's sulfur productive facilities and its stocks of mined sulfur stand the nation in good stead to meet the additional demands involved in winning the war and then to fill the requirements of the post war world.

By J. F. Hartlieb

**Continental Can Co.**

AS a vital accessory to the production of a most important munition of war, namely, food, the can-making industry has been streamlined to the needs of the Victory campaign. Its production of containers is now devoted, practically entirely, to the packaging of food and other essential commodities for the armed forces, lease-lend, and necessary civilian consumption.

. . . Because of military and essential civilian needs for canned foods, that part of Continental Can Company's business which is devoted to packers' food cans (approximately 60 per cent) has been operating on a near-normal basis. The production of general line cans, which normally are used for packaging a wide variety of commodities, has been very substantially reduced and our production in this field now is only for essential government needs.

The decline in general line production has been partly offset by taking government contracts, both as a prime and as a subcontractor, for the manufacture of various articles necessary to the war effort, in addition to the standard types of cans required for use of the armed forces. The company now has a substantial volume of such orders on its books for future production. Approximately one-half of this represents machine shop work which is being carried on in Continental's extensive shops, located at three strategic points, and also, to a limited extent, in the maintenance machine shops located in a number of its plants.

To these advantages we may be certain that the present extensive scientific research work of the can-making industry will add others, so that, after the war, tin containers will fill container needs better than ever before. In addition, the company's research laboratories are busy studying new materials and combinations of old materials that may be found suitable for use in the packaging of some products formerly requiring metal containers. This work we believe will place us in a favorable position to supply the future packaging needs of industry.

# FOREIGN LITERATURE DIGEST

By T. E. R. Singer

REVISTA DE QUIMICA INDUSTRIAL (Rio de Janeiro) Vol. XI, No. 120 (1942) pp. 20-21.

*Determination of Tungsten in Its Minerals:* Tungsten minerals are almost always accompanied by cassiterite and less often by rutile or ilmenite, and the determination of this metal is a very delicate operation.

The method proposed by Antonietta de Larmo Canticao is based on the quantitative precipitation of the tungsten by oxyquinoline in an oxalic medium, thus avoiding the precipitation of other elements, particularly tetravalent tin.

The procedure is as follows: A sample of 1 g. of the mineral is taken, finely ground, placed in a platinum crucible and treated with 5-6 times its weight of a mixture of sodium and potassium carbonates. The mixture is melted down. After cooling, the fused mass is leached with hot water and filtered chiefly to separate the iron, manganese, etc., which precipitate in an alkaline medium. The precipitate is washed with water containing 1% sodium carbonate, the filtrate and wash waters being collected in a 500 cc. flask.

50 cc. of this solution is taken, diluted to about 100 cc., about 4 g. of oxalic acid is added, the mixture is heated to boiling, and after cooling, a few drops of methyl red are added and the solution neutralized by soda.

The solution is diluted to about 250 cc. with water, heated to 80° C. and a solution of 8-ortho-oxyquinoline dissolved in glacial acetic acid added drop by drop until no more precipitate forms. The mixture is then shaken and placed on a water bath for 40 minutes and filtered. It is washed with a concentrated solution of sodium oxalate containing 1% solution of oxyquinoline and then hot water.

The resulting precipitate is dried and calcined. Great care should be taken in burning the paper. The calcined product is  $WO_3$  and the final weight of this product multiplied by 1000 will give the % of  $WO_3$ .

REVISTA BRASILEIRA DE QUIMICA (Ciencia e Industria) Vol. XIII, No. 77 (1942) pp. 262-4.

*Castor Seed:* Since the castor seed is used on a large scale in a number of industries, various means are being taken to increase its production. Sao Paulo exports the seed regularly and last year its export reached almost 40 mil contos.

Dr. Teodoreto de Camargo, Superintendent of the Department of Vegetable Cultivation, reports that the Ricinus, a plant of African origin which has been cultivated in the southern countries of Europe for centuries, can be cultivated economically only in tropical and semi-tropical regions, since the plants require about 4,000 calories to produce a kilogram of carbohydrates, whereas 9,000 calories are necessary to produce a kilogram of fat.

The same variety of castor plant which produces 1,400 kilograms of seeds in Campinas, yields about 2,000 to 2,400 in Pindorama. The greatest difficulty experienced by cultivators of this plant was the lack of a uniform variety, not only in regard to the size and colour of the seeds but also to the oil content. The commercial seed consists of a mixture of all sizes, colours and oil contents, a situation which leads to an inferior product.

The Department of Vegetable Cultivation is distributing the seeds of three dwarf varieties which are very productive, ripen regularly, are uniform and contain about 48% oil. The department is distributing approximately 35 tons of these seeds this year. This is sufficient to plant 2,000 alqueires of land which should produce about 6,000 tons of seed.

Although castor oil is continuously finding wider application in industry, its chief use is as a lubricant for high-speed motors.

A lipase found in the seed is used chiefly in the manufacture of glycerine.

Another use is based on the discovery of Sabattier and Mailhe of the University of Montpellier, which makes it possible to convert vegetable oils into crude petroleum. The vegetable oil is distilled at 700° C. in the presence of a catalyst, yielding a crude "cracked" oil which, on fractional distillation, yields a 70% product which is distilled at 300° C. and can be refined as well as petroleum.

CHEMICAL TRADE JOURNAL AND  
CHEMICAL ENGINEER (England)  
Dec. 4, 1942.

*Indian-made Pyrogallol:* Pyrogallol is now being manufactured on a large scale from gallic acid by the Bengal Chemical and Pharmaceutical Works, Ltd., of Calcutta. The method used has been developed in the company's own laboratories, and the pyrogallol made is said to be equal in quality to any material hitherto imported.

## Industry's Bookshelf

(Continued from page 40)

wishes to search particular fields for greater detail than is given here.

**Gas Warfare**, by Brig. General Alden N. Waitt, Duell, Sloan & Pearce, Inc., New York; 327 pp., \$2.75. Reviewed by J. W. H. Randall.

There has been a great deal published by both military and civilian agencies on the use of Gas as a military weapon but it has remained for Brigadier General Alden N. Waitt in his recent book "Gas Warfare" to thoroughly cover the subject.

General Waitt is by education a scientist with several years' experience as an instructor in chemistry at the University of Kentucky. He was Division Gas Officer with the A. E. F., during World War 1 and since that time has made extensive studies of all phases of gas warfare. With this training and authoritative background he has succeeded in translating both chemical and military terms into every-day language so that the soldier and civilian may understand. He shows why gas is the ideal weapon and traces its growth from ancient times up to the present. The various methods of disseminating gas on the enemy are clearly brought out and he explains its tactical uses.

After describing the several types of warfare gases, their characteristics and methods of attack on a civilian population he tells how to protect oneself against them, for, as he states "most gas casualties can be avoided. Proper gas discipline and use of protective equipment can reduce to a very small percentage the number of men put out of action by chemical agents."

The physiological effect of the various gases is clearly brought out and the subject of First Aid is simply but fully covered. An appendix contains tables giving technical data on each of the war gases so far used so that those interested may have full information for study and reference. The use and care of the civilian gas mask is explained as are the methods of gas-proofing homes and shelters. Methods and means for decontaminating streets, buildings, etc., are simply described.

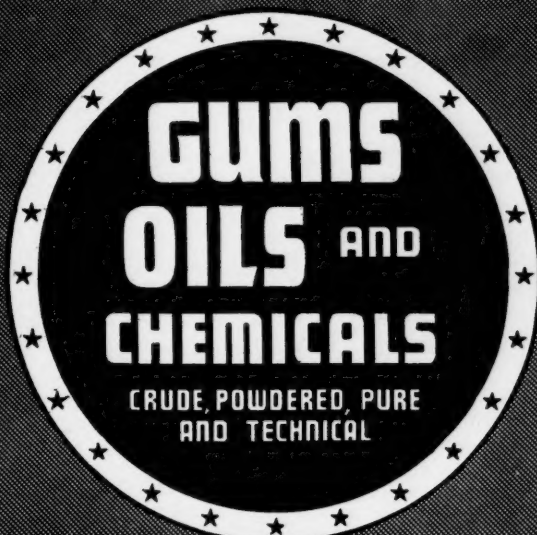
The book is extremely well written and the diagrams and cuts used to visualize the text are clear and easily understood by a layman.

General Waitt has done a timely and splendid job and proven himself an outstanding American authority on "Gas Warfare."

# PAUL A. DUNKEL & CO., Inc.,

82 WALL STREET  
NEW YORK, N. Y.  
Hanover 2-3750

IMPORTERS AND EXPORTERS:



Representatives

CHICAGO: J. H. DELAMAR & SON, 160 E. ILLINOIS ST.  
NEW ENGLAND: P. A. HOUGHTON, INC., BOSTON, MASS.  
PHILADELPHIA: R. PELTZ & CO., 36 KENILWORTH ST.

GUMS:  
GUM ARABIC  
GUM GHATTI  
GUM ARABIC BLEACHED  
GUM TRAGACANTH  
GUM KARAYA (Indian)  
GUM SHIRAZ  
GUM EGYPTIAN  
GUM LOCUST (Carob Flour)  
QUINCE SEED

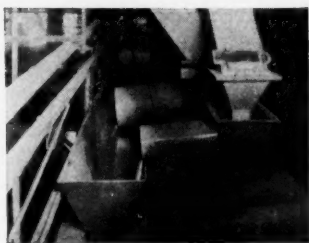
SPECIALTIES:  
MENTHOL (Crystals)  
PEPPERMINT OIL  
CITRONELLA OIL  
SPEARMINT OIL  
TEA SEED OIL

EGG ALBUMEN  
EGG YOLK  
BLOOD ALBUMEN  
JAPAN WAX  
CANDELILLA WAX

CASEIN

## SYNTRON

REG. TRADE MARK



"Vibra-Flow"  
VIBRATING  
FEEDERS  
GIVE  
YOU

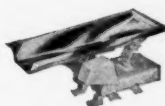
Instant control of rate of flow by simple rheostat regulation.

Adaptability to all types of processes and materials.

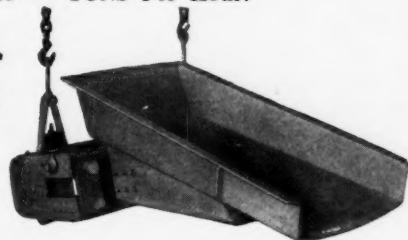
Efficiency—Operate from AC current—consume from 25 to 1,500 Watts.

Economy—No motors, gears, cams, idlers, bearings, etc., to wear out.

Pounds—to—TONS Per Hour.



Write us  
about your  
problem.



SYNTRON CO., 420 Lexington Ave., Homer City, Pa.



## PROCESSING EQUIPMENT



"Unique" Mixer. All-steel welded . . . extra large. Equipped with cold water jacket, mixing inlet and two inspection doors. Solid stainless steel construction.

Firms with war contracts have immediate priority on our complete engineering and manufacturing facilities.

ROBINSON MANUFACTURING COMPANY

WORKS: MUNCY, PA.

30 CHURCH STREET, NEW YORK

# CANADIAN REVIEW

By Kenneth R. Wilson

**O**TTAWA—Out of Canada's 1942 experience with wartime regulations and controls have come important changes—also lessons which business management in the United States may find of great value in 1943. Canadian control experience now reached back almost four and a half years. Some of her war measures were planned and blueprinted as early as 1938. By September, 1939, the main lines of fiscal policy were outlined in a prophetic speech by the Finance Minister, Hon. J. L. Ilsley. Here briefly is a progress report on Canada's major war control policies as at the beginning of 1943.

## 1. Price Control.

After one year of an overall price ceiling Canada has found it necessary to adopt an entirely new tactic — stabilization of the cost of living.



K. R. Wilson

Actually, Canada's price ceiling policy proved a phenomenal success during the first twelve months of operation but the lesson Canada has learned and is putting into effect in 1943, is that no one policy is sacrosanct in the rapidly-moving battle against inflation. A program which looked watertight in December, 1941 was headed for sure disaster in 1943 unless drastic changes were made.

Canada announced a drastic change in policy early in December by payment of new and outright subsidies to consumers. All across Canada, milk prices have been cut a full two-cents a quart and the retail prices of tea, coffee and oranges ordered reduced. The difference between the new and old prices will be made up by direct federal subsidy—a subsidy to "peg" the cost of living.

Why was this done and why was it necessary?

One basic reason is that price control in Canada is tied to wage control by means of a cost-of-living bonus. Every time the cost of living rises a point, Canadian wage earners are entitled (by law) to a raise of 25 cents a week. (This is in lieu of increased wage rates which are banned in Canada for the duration.) These wage-price adjustments are made quarterly. The last one took place in August, 1942. It cost employers (whose selling prices are frozen under the price ceiling) an additional \$50 to \$60 millions in wage bills.

The bonus could not have been paid without cracking the price ceiling, had it not been for one all-important factor—rising volume of business. Looking back, it is very obvious that the rising curve of consumer and civilian sales is what saved Canada's price ceiling in 1942. So long as sales were rising, it wasn't too difficult for business to absorb the price "squeeze."

Today, this country faces an almost certain decline in civilian production and sales. Yet price control officials knew that when the next quarterly adjustment came round in February, 1943, the cost of living index would have shown a further rise. That would have meant big new wage bonus payments for industry—payments which could no longer be absorbed, with business volume either flattening or on the decline. That's why the new policy was introduced.

From the United States point of view an interesting feature is this: price officials in Canada after a very careful examination of all the alternatives, agreed that it was much cheaper to pay a direct subsidy to consumers and thus relieve the pressure on the cost of living, rather than attempt to further bonus industry to operate within the price ceiling. The consumer subsidies on milk, tea, coffee and oranges will relieve the "pressure" on the government cost of living index by about  $1\frac{1}{4}$  to  $1\frac{1}{2}$  points and cost the treasury about \$40 millions. By doing this it is hoped to "peg" the cost of living index and save industry paying out big cost of living bonuses, which in turn would probably have required further bonuses or adjustments in order to make it possible for business to continue operating within the ceiling.

Under this new policy, Canada is also drawing a line between different kinds of consumer goods. Prices of foodstuffs and other usable consumer goods will henceforth (if necessary) be stabilized in order to achieve the new goal of stabilizing the cost of living. On the other hand, prices of durable consumer goods (furniture, etc.) which are not considered essential, may henceforth be allowed to rise or find a new "ceiling."

## 2. Wage Controls.

Under the wage-rate and salary freezing order which went into effect in Canada more than a year ago, the most important development has been a widespread "smoothing" out of anomalous rates and situations within local areas, industries, etc. Canada has now a more uniform wage structure than at any time in her industrial history. Unfortunately

figures are lacking to give the effect of these adjustments on wage rates as a whole. The adjustments are made and authorized by provincial boards. What is feared is that this "decentralization" of policy has made for considerable lack of uniformity so far as wage adjustments within individual provinces are concerned.

Because of the importance of these adjustments in terms of the price ceiling, some machinery for collating this information at one central point is badly lacking.

## 3. Manpower Control.

Canada's attempt to set up a single manpower boss has failed. In March, 1942, Elliott M. Little was named Director of National Selective Service. His authority extended only to civilian manpower, though he was told to coordinate all forms of service. During the summer his powers were broadened but because of internal and departmental conflicts and unwillingness of the government to clothe him with the powers he thought were needed to do the job, he resigned.

Now Canada's manpower machinery becomes an integral part of the Department of Labor. It has two jobs: (1) a large-scale "employment agency" job for controlling the ebb and flow of workers into essential industry; (2) operation of the draft machinery for calling up men drafted into the army for home defence. It is expected to do a competent job but along more modest lines than had been previously envisaged.

## 4. Curtailment of Civilian Industry.

This program announced by the government with much fanfare last October has temporarily bogged down. Scores of industries have submitted detailed plans for curtailment through their individual price control administrators, but about the only effect of the program to date has been a speeding up of simplification and standardization of merchandise to eliminate frills and styles and save manpower and materials.

Behind the slowing down of this program which was aimed to put Canada immediately on an "iron rations" basis "for the duration," is the fact that greater efficiency in industrial production; some shortages of critical war materials; and a revamping of the program for drafting men into the army, have temporarily eased the manpower shortage which threatened two or three months ago. Curtailment authorities refuse to be put in the position of throwing men out of civilian employment unless there are immediate war jobs ready for them to work at. Canada will put the "squeeze" on its civilian non-essential manpower as soon as that manpower can be absorbed. It has drawn back in the last few weeks from adopting a wholesale curtailment program which in the long run might mean a wastage rather than a saving in man-working-hours.



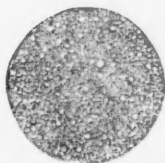
Available for  
Immediate Shipment

*Laboratory-  
Size*

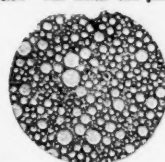
**HOMOGENIZER!**

... Ideal for  
Experimental Batches

**\$6.50**  
Complete!



Above—with Hand Homogenizer  
Below—with mortar and pestle



New laboratory convenience, new speed in making test samples or experimental batches! Uses as little as 1 oz. of material. Homogenizes instantly—each stroke of hand-lever ejects a jet of completely emulsified liquid. No emulsion-failures, provided the ingredient ratio is sound—permanent suspension always. In photos at left, note fine degree of dispersion secured (above) compared with coarseness of same mixture emulsified with mortar and pestle (below).

Hundreds of laboratories save time and materials by using this simple, practical Hand Homogenizer, for batches up to 10 oz. Portable, easy to operate and clean, strongly built of molded aluminum, with stainless steel piston. 10½ in. high, 12 oz. bowl. Only \$6.50 complete—order direct or from your laboratory supply house (satisfaction guaranteed)—or write for further details.

International Emulsifiers, Inc.  
Dept. 101, 2409 Surrey Court, Chicago, Ill.

*International*  
**HAND HOMOGENIZER**

For Metals — Rubber — Textiles — Leather

## NEW WAX FINISHES!

To help conserve many articles vital to war, the makers of Johnson's Waxes have formulated a special line of industrial wax finishes. Today these finishes are widely used by manufacturers of the following:

**METALS:** On black-oxidized surfaces, Johnson's Rust-Inhibiting Waxes are meeting the need for a dry, dull, black protective finish.

**RUBBER:** Johnson's Wax Finishes are successfully used to retard oxidation, thus providing a considerable degree of protection for vital rubber. Easy to apply, water-repellent, non-flammable. For both natural and synthetic rubber.

**TEXTILES:** Drax, Johnson's new water-repellent Wax Emulsion, is supplied to meet exacting Army Quartermaster Dept. specifications. Also available in special formulations containing mildew-resisting agents.

**LEATHER:** On leather goods many manufacturers are using a Johnson's Wax Finish to replace other finishes not now available and finding it more satisfactory for many leather articles.

Write for factual, full information.  
Samples sent on request.

**S. C. Johnson & Son, Inc.**  
INDUSTRIAL WAX DIVISION, DEPT. CI-13  
RACINE, WISCONSIN

BUY UNITED STATES WAR SAVINGS BONDS  
AND STAMPS



**YES, I SAID  
THIS DEGRAS IS BETTER -  
9 WAYS BETTER!**

WHEN the subject of Degras comes up, there's always a good word for Malmstrom's Nimco Brand . . . the Neutral and Common Degras that's "America's 1st Choice" today.

Sure it's a *premium* product . . . but you don't pay a premium price to enjoy the 9 big advantages of Malmstrom's Nimco Brand Degras.

To check results on a commercial basis order a quantity today, or send for free testing sample.



**America's  
No. 1 Choice  
Because It's  
9 WAYS  
BETTER**

1. LOW MOISTURE
2. LOW ASH CONTENT
3. MINIMUM ODOR
4. CONTROLLED COLOR
5. UNIFORM QUALITY
6. UNIFORM TEXTURE
7. CONTROLLED VISCOSITY
8. CONTROLLED MELTING POINT
9. AVAILABLE TO ANY SPECIFICATION

**N. I. MALMSTROM & CO.**

America's Largest Suppliers of **DEGRAS** - Neutral and Common • **WOOL GREASES**  
**LANOLIN** - Anhydrous U.S.P. • Hydrous U.S.P. • Absorption Base • Technical

147 LOMBARDY STREET • BROOKLYN, NEW YORK

STOCKS CARRIED IN CLEVELAND • CHICAGO • KANSASCITY • MINNEAPOLIS • LOS ANGELES

# MARKETS IN REVIEW

By Paul B. Slawter, Jr.

Heavy Chemicals — Fine Chemicals — Coal Tar Chemicals — Raw Materials — Agricultural Chemicals — Pigments and Solvents

If you are the type that gets happy about such things, you might be interested to know that the Combined Raw Materials Board has allocated the raw materials available for export, which, with French cooperation, have become available to the United Nations in French North Africa. The United States, specifically, has been allocated unknown quantities of manganese, cobalt ore and cork. Size of actual shipments will depend upon the military and shipping situation. If you are a trend spotter, you might place some value on this news. Certainly, it is indicative of things to come. And as the armed forces of the United States make their way further and further into enemy-held territory you'll hear more about raw materials being made available. Who knows, maybe it will be cheaper to take back the rubber that Japan now holds than it will to build up that synthetic rubber industry you've heard about. Maybe a lot quicker, too, from some of the reports you hear.

To get back to North Africa, however, the most important raw materials available there are phosphate rock and iron ore. French North Africa is the world's second largest producer of phosphate rock (we are first) and average production of high-grade iron ores is more than 3,000,000 tons annually.

**Allocations:** Additional December allocation of chemicals to civilian industry, including copper chemicals, furnace type carbon black, phenolic resins, and para phenyl phenol resins, were announced December 15 by the WPB chemicals division. These allocations, which do not include military needs, follow:

Copper chemicals—No restrictions were placed on end use. Inventories were held to a 30-day level. Furnace type carbon black—Requests for material for rubber compounding were granted in full. For use in inks and paints, minor quantities were allocated to specific users to give them a chance to make necessary adjustments to another type of black in their operations. Phenolic resins—(1) Specialties—Requests for material for the following uses were filled in full: bonding and impregnation, resin for use with rubber, synthetic rubber, pitch or asphalt in molded articles, and thread sealing compounds. Requests for material for the following uses

were granted in part: abrasive (80 per cent), friction material (84 per cent), lamp and tube basing (57 per cent), paint and lacquer bristle setting (99 per cent), impregnation of solenoids and other electrical windings (70 per cent), casting impregnation (95 per cent), binding or composition cork (71 per cent). (2) Molding compounds—The following uses were granted in full: food closures printing plates. Granted in part: industrial power and light (84 per cent), medical equipment and supplies, scientific instrument parts (69 per cent), civilian electrical apparatus; closures other than food, wine and liquor (85 per cent), industrial equipment (70 per cent), agricultural equipment (61 per cent), health and sanitation (29 per cent), replacement for civilian (domestic) appliances (72 per cent), textile, rayon equipment and parts (68 per cent), replacement parts for automotive use (89 per cent). Denied were request for material for amusement articles, ashtrays, and for wine and liquor closures. Phenolic resin already had been removed from civilian buttons and none was granted for this purpose. (3) Laminates—Requests for material for safety helmets were granted in full. Requests for material for electrical insulating parts were granted up to (98 per cent). Other uses filed in part were: mechanical and structural uses (57 per cent), phenolic gears, gear blanks, sheet material for use in gears (55 per cent), corrosion resistant parts (49 per cent), and heat insulation (53 per cent). Requests for material for decorative purposes had already been denied in the past and no such requests were made this month. Para phenyl phenol resins—The following civilian requests were filled in part: electrical equipment, switch boards, circuit breakers (40 per cent), containers, paper liners for bottle caps (1 per cent), and coated abrasives (10 per cent). The following civilian requests were denied: road building equipment, refrigerators, inks, communications, laboratory equipment and experimental work.

Approximately 500 pounds of sulfamic acid and its derivatives are needed monthly by testing analytical, control, educational and research laboratories. Under the terms of a new order issued by the WPB, 5 pounds per person per month of these materials may be distributed without

application by the laboratory to WPB, but no producer or distributor is allowed to deliver more than 100 pounds during any 1 month. It is estimated that less than half of 1 per cent of the total production will be used under the exemption.

**For Sale:** Critical chemicals are offered for sale (if you are one of those entitled to them) by the Materials Redistribution Branch, WPB, 122 East 42d St., N. Y. City, (Murray Hill 3-6805, Ext. 411). If you want any of the following, call or write:

26,000 lbs., Acetic Acid (Glacial); 9,722 bags, Beryllium Ore; 1,000 lbs., Beryllium Oxide; 45 tons, Calcium Chloride (Solid); 8,000 lbs., Chrome Alum.; 4,300 lbs., Columbium; 190 lbs., Copper Carbonate; 300 lbs., Copper Cyanide; 10 drums, Diethylene Glycol; 300 lbs., Euxenite; 1,000 lbs., Glycerine (C. P.); 275 lbs., Nickel Chloride; 1,700 lbs., Polycrasite; 6,500 lbs., Potassium Alum (Granular); 164 lbs., Potassium Bichromate; 5 drums, Propylene Glycol; 198 lbs., Red Phosphorus; 800 lbs., Samaras-kite; 1,110 lbs., Sulfanilamide; 3,000 lbs., Tin Tetrachloride Anhyd.; 100 tons, Alum. Ammonia; 300 lbs., Ammonium Sulfate; 193 lbs., Antimony; 11,248 lbs., Belgium Antimony Regulus; 154,300 lbs., Antimony Oxide; 75 tons, Chinawood Oil (in bulk); 400 lbs., Chromic Oxide; 800 lbs., Cobalt Sulfate; 22,950 lbs., Copper Sulfate (large crystals); 5,000 lbs., Dyphenylguanidine; 700 gals., Ethyl Acetate; 6,000 lbs., Ethyl Glycol; 1,400 lbs., Ferro Chrome; 2,000 lbs., Nitric Acid 38°; 1,027 Carboys, Nitric Acid 40°; 7,000 gals., Oiticica Oil; 750 lbs., Palm Oil (Lagos); 100 oz., Quinine Ethyl Carbonate; 5,000 gals., Rapeseed Oil; 700 lbs., Sodium Antimonate; 5 tons, Sodium Cyanide; 400 lbs., Tannic Acid USP; 3,500 lbs., Tin Crystals; 1,130 lbs., Ferrotitanium (Titanium 98.9%); 60,808 gal., Tung Oil; 36,750 lbs., Zinc Oxide; 18,000 lbs., Zinc Sulfate; 600 lbs., Raw Nutgalls.

By the way, those of you affected by the Office of Price Administration's specific price schedules and regulations other than the General Maximum Price Regulation (and who isn't?) will be interested in a publication of the OPA distributed this month which digests interpretations of them. Entitled "Recent Price Interpretations No. 16," it's something you ought to have around and you can get it through the Office of War Information.

**Heavy Chemicals:** The chlorates are about the most active on this list. Early buying for weed killing is noticeable and of course tremendous quantities are going into the manufacture of explosives. Export prices of caustic soda are felt to be entirely too low by many in this business. Flameproofing chemicals are selling like hotcakes. Sulfuric acid

# STANDARD

THE ORIGINAL SYNTHETIC SOLVENT MANUFACTURERS

## ISOPROPYL ALCOHOL

### READILY AVAILABLE

Recommended for lacquers, resins, artificial leather, laminating varnishes, and many additional industrial solvent applications.

Isopropyl alcohol is on allocation and necessary forms will be gladly furnished.

**STANDARD ALCOHOL CO.**  
26 BROADWAY NEW YORK


## DENSITY CONTROLLER for PULPS



The Massec-Adams Density Controller, first used in ore classifiers, now has many applications in non-metallic and chemical plants—including potash and phosphate plants, washing coal, etc. Maintains *visual* control of density by motor-operated regulation of dilutant supply valve. Also available with standard chart recorder or with arm and weights for sink and float process. Widely optional location. *In writing, please describe your problem.*

The MINE AND SMELTER SUPPLY CO., Denver, Colo.

The Mark of Quality



COPPER SULPHATES

MANGANESE SULPHATE  
65% Manganese

ZINC SULPHATE  
89% Zinc

COPPER FUNGICIDES  
54%, 34%, and 26% Copper

Write for Free Samples and Bulletins

**TENNESSEE CORPORATION**  
Atlanta, Georgia Lockland, Ohio

## MARBLEHEAD

### High Calcium

## CHEMICAL LIME

Four Forms: Powdered Quick Lime —  
Pebble Lime — Hydrated Lime — Lump Lime

**MARBLEHEAD LIME CO.**  
160 N. La Salle Street Chicago, Illinois

ESTABLISHED 1880

## WM. S. GRAY & Co.

342 MADISON AVENUE, NEW YORK  
Murray Hill 2-3100 Cable: Graylime

Acetic Acid—Acetate of Lime	Formaldehyde	Xylol
Acetate of Soda	Denatured Alcohol	Whiting
Acetone C. P.	Turpentine	Magnesium Carbonate
Butyl Alcohol—Butyl Acetate	Rosin	Magnesium Oxide
Methanol—Methyl Acetone	Benzol	Precipitated Chalk
Methyl Acetate	Toluol	Anti-Freeze—Methanol and Alcohol

may have to be put under allocation shortly. War industries are taking tremendous quantities and so is the fertilizer industry. WPB has released considerable quantities of copper sulfate for January shipment. About 30% more material, it is rumored, will go to the agricultural trade in January than did in December.

**Fine Chemicals:** Revised Price Schedule No. 38 on glycerine has been amended to bring under its control refined glycerine sold by manufacturers and converters in small quantities. Sodium Chlorate will be available for weed eradication in 1943 in quantities sufficient to care for major needs without rigid State quotas, it was announced jointly Jan. 8 by the Department of Agriculture, and the War Production Board. The chemical will be distributed in the regular commercial channels as equitably as possible according to the demand and need, the Office for Agricultural War Relations of the Department advises. Since the supply is not yet equal to the demand, the material is still subject to allocation by the War Production Board, but the Department makes clear that the situation is easier than a year ago and that, barring unforeseen contingencies, there will be a comfortable quantity for use. Licenses obtained from the U. S. Bureau of Mines for purchase and use of this chemical are on an annual basis and must be renewed or obtained in 1943. This can be done through the local explosives licensing agent in each county, usually located at the county seat. Prices of sodium chlorate, covered by maximum price regulations of the Office of Price Administration, will remain the same as last year.

By the end of 1944 facilities to produce industrial alcohol will be completed and operating at sufficient capacity to meet all industrial needs, including that of synthetic rubber, Dr. Walter G. Whitman, chief of WPB's alcohol section, said this month.

At that time, he added, demand will be about 590,000,000 to 640,000,000 gallons annually. WPB expects to meet that and any future demand, he said, through expansion of present facilities, completion of three new plants already authorized at Omaha, Neb., Kansas City, Mo., and Muscatine, Iowa, and construction of other new plants in the Midwest for which surveys are being completed, and utilization of a 54,000,000-gallon stockpile now on hand.

Small amounts of sulfamic acid and its derivatives were made available last month to various laboratories without application to the WPB. Ascorbic acid was placed under allocation control Dec. 15. So were all hexahydric alcohols, acrylic resins and acrylic monomer. A severe shortage of castor oil is at hand. Limited shipping space is the cause. A subcommittee has been appointed by the

WPB to investigate the most equitable procedure for allotting castor oil to dehydrators in order to anticipate the problems arising from the severe curtailment of the use of the dehydrated product.

**Fertilizer Materials:** Office of Defense Transportation issued recently a special direction (ODT 18, Revised—5) which revoked ODT 18, Revised 3 and established minimum carloads for various commodities. Among other things, it had these:

Fertilizers—manufactured: Sodium nitrate, superphosphate, sulfate of ammonia, cyanamid and urea, in bags, in straight or mixed carloads, shall be loaded to a weight not less than 60,000 pounds.

Potash: In paper containers, shall be loaded to a weight not less than 80,000 pounds.

WPB has passed an order which terminated Jan. 19 Conservation Order M-221 relative to textile shipping bags. OPA issued a revision Jan. 4 of Maximum Price Regulation 135.

The following comments may be helpful in studying the provisions of the regulation.

1. Manufacturers, dealers, and agents are subject to the revised Regulation (Section 1367.32 (c)).

2. The revised Regulation applies to all sales of mixed fertilizer, superphosphate, or potash to consumers, regardless of quantity (Section 1367.32 (a)).

3. The revised Regulation applies to all sales by manufacturers to dealers, such sales being thus removed from GMPR (Section 1367.32 (a)).

4. The base-price period continues to be February 16–20, 1942, except that for Florida it has been set back to July 31, 1941. A manufacturer's prices published in his price schedule effective during the base-price period, with the dollar-and-cents increase permitted in Appendix A, establish his maximum prices (Section 1367.33 (a)). Such increases may be made only in the prices of the specified grades—not in the prices of all grades approved by WPB in Order M-231.

The amounts to be added are "per ton net to manufacturer" (Section 1367.44). The expression "net to manufacturer" means the amount received by a manufacturer after deduction of discounts and agents compensation, if any, from his schedule price (Section 1367.42 (a) (15)). Consequently, the amount that may be added to the manufacturer's list price may be greater than the "net" shown in Appendix A. To illustrate: If for a certain grade a manufacturer's discounts and agent's compensation aggregate 20 per cent, the net price being thus 80 per cent of the list price, and the permitted "net" increase is \$2.40, the amount that may be added to the list price is \$3.00.

For some of the States, there are differentials also for bags of different sizes

and types and permitted increases for the replacement of chemical nitrogen materials by organic nitrogen materials and permitted increases for replacement of customary organic nitrogen materials by oil seed meals, such increases are also "net to manufacturer."

5. The revision omits two methods for determining maximum prices contained in the original Regulation: the "average price" option, and the adoption under certain conditions of a competitor's prices. If a manufacturer has no maximum price established for a grade by his base period price schedule with any permitted increase, he must submit to OPA at Washington a proposed maximum price which must be in line with his established level of maximum prices for comparable grades and kinds; or if he has no established maximum prices his proposed price may not be higher than the general level of maximum prices established by the base period price schedules with the permitted increases (Section 1367.33 (b)).

6. The revised Regulation provides that a dealer's maximum prices shall be determined (a) by adding to the dealer's "net delivered cost" the margin "suggested" or "recommended" by the base period price schedule of the manufacturer from whom the dealer buys, or (b) by the consumers prices "suggested" by or effective under such price schedule with any permitted increases, or (c) if such price schedule provided for no such margin or prices, then by adding to the dealer's "net delivered cost" the margins specified in Appendix C. These margins vary for different areas, ranging from 5 to 10 per cent. (Section 1367.34 and Section 1367.46). In the "statement of considerations" it is said that such margins are based upon established rates of compensation to agents.

7. The handling of taxes in relation to maximum prices is covered by explicit instructions, both as to taxes in effect during February 16–20 1942, and as to taxes becoming effective after February 20, 1942. The 3 per cent transportation tax imposed by the Revenue Act of 1942 is to be treated as though it were a 3 per cent increase in the amount charged by any person transporting the commodity for hire and not as a tax for which a charge may be made in addition to the maximum price (Section 1367.36). (See The NFA News, December 1)

8. The revised Regulation specifically declares that any practice which is a device to get the effect of higher-than-ceiling prices without actually raising the dollar-and-cents price is as much a violation as an outright over-ceiling price (Section 1367.37).

9. All persons including manufacturers, agents, and dealers) are required to keep accurate and complete records of all sales of 250 pounds or more for so

# U.S.I. CHEMICAL NEWS

January



A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries



1943

## New Acetone Uses Indicated by Study Of Patent Files

### Chemical Plays Important Part In Processes in Varied Fields

A search of the patent files reveals many new uses for acetone in a number of varied fields, somewhat of a surprising fact because acetone has generally been considered a staple chemical with a fairly well-defined field of utility. A discussion of a few of these patents may serve to indicate the variety of hitherto unexplored applications of acetone.

One such patent concerns the concentration or recovery of the values of non-metalliferous ores by froth flotation processes in which fatty acid substances are employed as promoters. The inventor states that the power of the promoters can be very greatly increased by dilut-

(Continued on next page)

## Reactions Show Possibilities of Ethyl Sodium Acetone-Oxalate

### Versatility Clearly Indicated by Formation of Ring Compounds

A study of the reactions of ethyl sodium acetone-oxalate, a compound having the formula  $\text{CH}_3\text{COCH} = \text{C}(\text{ONa})\text{COOC}_2\text{H}_5$ , shows many new interesting possibilities.

The versatility of this chemical or the acid derived from it, alpha, gamma-dioxo-valeric acid, or its esters, in the formation of ring compounds may be seen

### Ethylene Used as Alkylator To Produce Anti-Knock Gas

CHICAGO, Ill. — A method for alkylating isobutane by ethylene in the presence of a particular type of catalyst to produce a motor fuel of relatively high anti-knock value has been developed by two men here, according to a patent that was granted recently.

from the table below. The first line of the table, for instance, shows that hydrazine reacts with ethyl sodium acetone-oxalate to give 3-methyl-5-pyrazolecarboxylic acid. One reaction not included below is that of ortho-aminobenzaldehyde, which is reported to produce a quinoline derivative,  $\text{C}_{10}\text{H}_8\text{O}_2\text{N}$ , whose structure has not been completely elucidated [Monatshefte für Chemie 52, 59-67 (1929)].

Samples of ethyl sodium acetone-oxalate may be obtained from U.S.I. on request for experimental work.

### ETHYL SODIUM ACETONE-OXALATE $\text{CH}_3\text{COCH} = \text{C}(\text{ONa})\text{COOC}_2\text{H}_5$

RING COMPOUNDS	SUBSTITUTED GROUPS	REAGENT	REFERENCE
<b>PYRAZOLE</b> 	3-methyl; 5-carboxylic acid  3-methyl; 1-phenyl; 5-carboxylic acid 5-methyl; 1-phenyl; 3-carboxylic acid	<b>HYDRAZINE</b>  <b>PHENYLHYDRAZINE</b>	Knorr A.279,217 (1894) German Patent 74,619,F.3,938  *Claisen & Roosen A.278,279,288 (1893)
<b>ISOXAZOLE</b> 	3-methyl; 5-carboxylic acid 5-methyl; 3-carboxylic acid	<b>HYDROXYLAMINE</b>	*Claisen, B.24,3908 (1891)
<b>PYRROLIDINE</b> 	2,3-dioxo; 4-acetyl; 1,5-diphenyl 4,5-dioxo; 1-methyl; 2-phenyl; 3-acetyl	<b>BENZALANILINE</b> <b>BENZALDEHYDE &amp; METHYLAMINE</b>	Schiff, Gigli, B.31,1307 (1898)  German Patents 280971, 283305,290531 F.12,792, 793,797
<b>PYRROLE</b> 	4-methyl; 3-acetyl; 2-carboxylic acid	<b>AMINOACETONE</b>	Piloty, Blömer B.45,3752 (1912) Fischer et al., A.461:244 (1928)
<b>1,3-DIOXOLANE</b> 	4-oxo; 2-trichloromethyl; 5-acetyl methylene	<b>CHLORAL</b>	Schiff B.31,1305 (1898)
<b>OXOLANE</b> 	2,3-dioxo; 4-acetyl; 5-phenyl 2,3-dioxo; 5-phenyl; 4-cinnamoyl	<b>BENZALDEHYDE in piperidine</b> <b>BENZALDEHYDE with dried HCl</b>	Ruhemann J.C.S.89 1239,1240 (1906) " " " "
<b>BENZENE</b> 	3-methyl; 5-hydroxy; 1-carboxylic acid 5-methyl; 3-hydroxy; 2-ethoxalyl; 1-carboxylic acid	<b>BARIUM HYDROXIDE</b> <b>SODIUM ACETATE</b>	Claisen B.22,327 (1889) C.A. 32,3340 (1938)
<b>PYRIDINE</b> 	4-methyl; 3-acetyl; 2,6-dicarboxylic acid 4-methyl; 3-acetyl; 6-carboxylic acid 4-methyl; 5-acetyl; 2,6-dicarboxylic acid 2,6-dimethyl; 3,4-dicarboxylic acid	<b>AMMONIA</b> <b>AMMONIA</b> <b>AMMONIA</b>  <b>ETHYL β-AMINO-CROTONATE</b>	Mumm, Bergell B.45,3045 (1912) C.A. 26 2171 (1932)  Mumm & Hunecke B.50,1573 (1917)

\*See also B.45, 3045 (1912). Abbreviations: A. — Liebig's Annalen; B. — Berichte der Deutschen Chemischen Gesellschaft; C.A. — Chemical Abstracts; F. — Friedlaender, Fortschritte der Theerfarben Fabrikation; J.C.S. — Journal of the Chemical Society.

## Many New Chemical Developments Noted During the Past Year

An idea of the outstanding chemical progress made during 1942 can be gained by a brief review of the major developments summarized in the past year's issues of U.S.I. CHEMICAL NEWS. During 1942 the following topics were discussed in leading articles in this publication:

**January.** Reactions of urethan. Unusual possibilities of alkyl phosphates.

**February.** Importance of water in resin solutions. Use of chemicals in lengthening the life of fish nets.

**March.** Applications of ethyl benzoyletate in dye manufacture and chemical synthesis. Luminescent finishes.

**April.** Ethyl carbonate as a raw material. Lined steel drums.

**May.** Possibilities of ethyl acetoacetate. Novel experimental vinegar generator.

**June.** Determination of the combined acids in cellulose mixed esters. New chemical to end corrosion of iron by lacquers.

**July.** Utility of ethyl sodium oxalacetate in chemical synthesis. Ethyl formate for treating yarns.

**August.** Carbon dioxide as a fire extinguisher and inflation agent. Availability of ethyl sodium acetone-oxalate for experimental work.

**September.** Resin emulsions as possible latex substitutes. Novel perfumes from Indian plant lore.

**October.** New method for studying drying rates of lacquer films. Use of heat treatment in improving quality of yellow pigments.

**November.** Preparation of ethyl oxalacetate. Puerto Rican plants yield essential oils.

**December.** The prevention of foam in casein paints and other protein compositions. Procedure for improving synthetic camphor yield.

(Copies of these issues are available on request)

## Varnish for Maintaining Sterile Operative Field

A new skin varnish for maintaining sterility in the operative field has been developed according to the following formula:

Santicizer B	16.5 g.
Acetone	605
Ethyl cellulose	165
Ethanol	715
Castor oil	16.5

## Tests Show Superiority of Ethanol as Disinfectant

Ethanol is considered to be an ideal disinfectant, according to experiments in which the effect of ethanol in adsorption tests, particularly in the disinfection of hands, was studied.

One of the special advantages claimed for ethanol is its capacity to kill large numbers of bacteria. It was discovered that when two loopfuls of solid growth of staphylococci or B. coli are suspended in only two drops of 96% ethanol, complete disinfection takes place in a few minutes, whereas 1% Zephrol, 5% Sagrotan and 0.1% mercury solutions fail to achieve this.

## New Acetone Uses

(Continued from previous page)

ing the flotation reagent with about 20% or less of a water-soluble ketone such as acetone.

Another patent of interest involves the preparation of sulfanilylamino-pyridine compounds. A mixture of acetone and pyridine is used to form a reaction medium for reacting p-acetylaminobenzene sulfonyl chloride with alpha amino pyridine for the production of 2-acetylsulfanilylamino-pyridine.

## Printing-Ink Binders

Rapid drying properties, high gloss and water-insolubility at slightly elevated temperatures are among the advantages claimed for the use of acetone-formaldehyde resins as binders for printing inks. The formation of such an agent comprises interacting formaldehyde with acetone in the presence of an alkaline catalyst, pigmenting material, and a liquid organic solvent such as acetone.

In another patent, acetone is suggested in combination with nitrocellulose to form an adhesive for use in holding metal parts to be welded into position, such as threaded steel buttons to a background of steel ship plates.

A more simple method of producing alcohols of the acetylene series than those now in use is claimed in a recent patent. Such alcohols are prepared directly from acetone and acetylene by bringing into contact acetylene with a mixture of acetone and an aqueous solution having an alkaline reaction.

Acetone is also suggested by an inventor for the manufacture of beta-cyanoacrylic acid esters. According to this process, such esters are obtained by reacting an ester of alpha-chloroacrylic acid with a cyanide of an alkali metal or an alkaline earth metal at approximate room temperature in the presence of water and acetone.

## TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

**A moistureproof sealer** particularly developed to seal waterproof papers used as liners in shipping containers is said to even protect goods against immersion. A white, colorless fluid, the adhesive seals overlapping liner seams against air, moisture and temperature extremes. (No. 650)

U S I

**A liquid temperature indicator** employing the same principle as pellets and sticks is intended for use in signalling temperatures. It is available in melting points from 125 to 1600° F. When applied, it dries instantly, then liquefies sharply when the desired temperature is reached. (No. 651)

U S I

**A grease-impervious paper box** for packaging ointments and similar substances is offered, which has an outside covering of parchment paper supplementing the chemical compound which coats the inside. Although not impervious to water and grease in the same degree, it is said to successfully package substances which have a water content up to 5%. (No. 652)

U S I

**A protective paint** is offered for exterior and interior surfaces having an appreciable amount of exposed metal. The primers are said to be rust inhibitive and provide a tough, elastic film which expands and contracts at the same rate as the metal. (No. 653)

U S I

**Citric acid substitutes** are now being produced domestically by a manufacturer who made similar products in Europe during the last World War. (No. 654)

U S I

**A prepared catalyst** for isomerization processes has been developed, consisting of activated bauxite impregnated with 15 to 20% of anhydrous aluminum chloride. (No. 655)

U S I

**Non-ionic emulsifiers** are available commercially which are said to offer very interesting possibilities in the manufacture of synthetic rubbers by polymerization of butadiene, styrene, acrylonitrile or other unsaturated compounds. (No. 656)

U S I

**Static-conductive linoleum** is offered which is described as nonsparking and highly conductive of static, yet providing adequate protection against accidental grounding from service charges. It is said to meet Ordnance Department specifications for floor and table coverings in explosives operations. (No. 657)

U S I

**A new colorimeter** of the continuous-flow type is offered, which is said to permit the determination of light transmission of a liquid passing through the instrument. Its application, therefore, is suggested for the continuous control of chemical processes in which the color or turbidity of a liquid must be checked as an indication of concentration or other property. (No. 658)

U S I

**Paint brush bristles** have been developed from Nylon which are not only said to have the required taper, but also resiliency, toughness, length and inertness to paint ingredients. At present their use is being restricted to military purposes. (No. 659)

# U.S.I. INDUSTRIAL CHEMICALS, INC.

60 EAST 42ND STREET, NEW YORK



BRANCHES IN ALL PRINCIPAL CITIES

### ALCOHOLS

Amyl Alcohol  
Butanol (Normal Butyl Alcohol)  
Fusel Oil—Refined

### Ethanol (Ethyl Alcohol)

Specially Denatured—All regular and anhydrous formulas  
Completely Denatured—all regular and anhydrous formulas  
Pure—190 proof, C.P. 96%, Absolute  
U.S.I. Denatured Alcohol  
Anti-freeze  
Super Pyro Anti-freeze  
Solox Proprietary Solvent  
Solox D-I De-icing Fluid

### ANSOLS

Ansol M  
Ansol PR

### ACETIC ESTERS

Amyl Acetate  
Butyl Acetate  
Ethyl Acetate

### OXALIC ESTERS

Butyl Oxalate  
Ethyl Oxalate

### PHTHALIC ESTERS

Amyl Phthalate  
Butyl Phthalate  
Ethyl Phthalate

### OTHER ESTERS

Dialol  
Ethyl Carbonate  
Ethyl Chloroformate  
Ethyl Formate

### INTERMEDIATES

Acetoacetanilide  
Acetoacet-ortho-anisidide  
Acetoacet-ortho-chloranilide  
Acetoacet-ortho-toluidide  
Acetoacet-para-chloranilide  
Ethyl Acetoacetate  
Ethyl Benzoylacetate  
Ethyl Sodium Oxalacetate

### ETHERS

Ethyl Ether  
Ethyl Ether Absolute—A.C.S.

### OTHER PRODUCTS

Acetone  
Collodions  
Curbay B-G  
Curbay Binders  
Curbay X (Powder)  
Ethylene  
Ethylene Glycol  
Nitrocellulose Solutions  
Potash, Agricultural  
Urethan  
Vacatone

Registered Trade Mark

long as the Emergency Price Control Act is in effect (Section 1367.38 (a)).

10. Every manufacturer who has not already done so is required to file with OPA in Washington, not later than January 15, 1943, a copy of every price schedule issued by him from and after July 1, 1941, and copies of all amendments or supplements thereto. If a manufacturer has not heretofore issued a written or printed price schedule, he must file with OPA in Washington a list of maximum prices charged by seasons from and after October 1, 1941. Each manufacturer must file with OPA in Washington a copy of every new price list and supplement or amendment at least 10 days prior to the proposed effective date, and each such price list, supplement, or amendment so filed must be accompanied by a statement of all changes made wherein it differs from the manufacturer's currently effective price schedule (Section 1367.38 (b) (11)).

11. Sales or deliveries covered by the revised Regulation are not subject to GMPR (Section 1367.41 (a)). Consequently, consumer prices need no longer be filed with local War Price and Rationing Boards. However, the revised Regulation requires (a) that every dealer or agent post a list of his consumer's maximum prices at his place of business, and (b) that every manufacturer selling direct to consumers post his consumer's price list at his office, plant, and warehouse for the area served thereby, (Section 1367.38 (b) (3) and (4)).

12. The registration and licensing provisions have been carried over from the original Regulation into the revision (Section 1367.39 (c)).

13. Petitions for amendment, adjustment, or exception may be filed in accordance with revised Procedural Regulation No. 1 (copy sent to manufacturers November 9). Section 1367.40 (a)).

14. Adjustable pricing is allowed on "government contracts" as defined in the Regulation. When application for adjustment has been filed in accordance with Procedural Regulation No. 6 (copy will be supplied by any OPA office), deliveries may be made at the requested price, subject to refund if the requested price is disapproved or lowered (Section 1367.40 (b)).

15. A manufacturer or dealer may, during the thirty-day period next succeeding January 4, 1943, agree to adjust prices to or at prices not in excess of his maximum price established under the revised Regulation (Section 1367.43 (c)). This affords opportunity for adjustable pricing while the manufacturer or dealer is calculating new prices and preparing new price schedules.

16. Upon request addressed to OPA in Washington, copies of the revised Regulation will be furnished to manufacturers

for distribution to their dealers and agents (Section 1367.38 (b) (2)).

**Natural Raw Materials:** The Dept. of Agriculture, in the latest issue of the Fats and Oils Situation, states:

Production of fats and oils from domestic materials in the 1942 crop year is estimated at 11.7 billion pounds compared with 9.6 billion pounds a year earlier. Goals for 1943 call for increased acreages of flaxseed and peanuts, and a soybean acreage only slightly less than the record acreage in 1942. The cotton goal has been reduced, however, to permit greater utilization of resources for more essential crops such as peanuts and feed grains. With normal yields, production of vegetable oils from domestic materials may total 4.3 billion pounds in the 1943 crop year compared with 4.2 billion pounds in the current year. Weather was unusually favorable in 1942. The upward trend in lard, tallow and grease production is expected to continue in 1943, but this may be partly offset by reduced butter production.

Supplies of fats and oils for 1943, including production, imports and stocks on hand January 1, probably will total about 14.5 billion pounds. Military and export requirements for 1943 are estimated at 2.6 billion pounds, and civilian use under the manufacturers' limitation order is

estimated at 9.2 billion pounds. This will leave only 2.7 billion pounds for stocks at the close of 1943 compared with a goal established by the Foods Requirements Committee totaling 3.5 billion pounds, including contingency reserves. To meet this objective, direct consumer rationing of food fats and oils probably would be necessary, for without such action further reductions in allocations of food fats to manufacturers are not considered feasible. The quantity of fats that consumers would take at ceiling prices is estimated to be considerably greater than the quantity available under the present limitations order, with due consideration to the supply of butter and lard available for civilian use. The manufacture of butter and lard is not restricted.

To meet mounting military and lend-lease requirements, the government probably will ration food fats and oils in 1943 at a level at least 15 per cent below civilian demands, the Bureau of Agricultural Economics said this month.

Rosin primary market quotations early this month went beyond stockpile prices for the first time. Outlook for rosin is regarded in Savannah as highly favorable. Current turpentine business is very small and the market is about at the loan value level. Producers closed their calendar year with much improved financial condition. Table below is interesting.

**GUM NAVAL STORES PRICE BASIS**

	Current Parity Prices	Loan Values 1943	Stockpile Prices 1943	Official Quotations Jan. 8
Turpentine .....	71.6c	.64c	.68c	.64c
X .....	\$4.09	\$3.70	\$3.90	\$3.90
WW .....	4.09	3.70	3.90	3.90
WG .....	4.04	3.65	3.85	3.90
N .....	3.99	3.60	3.80	3.82
M .....	3.94	3.55	3.75	3.77
K .....	3.89	3.50	3.70	3.72
I .....	3.79	3.40	3.60	3.62
H .....	3.74	3.35	3.55	3.53
G .....	3.64	3.25	3.45	3.46

## WPB Personnel

(Continued from last month)

### Administrative Division

Administrative Officer, James G. Robinson, 2006 RRB-3565.  
Asst. Administrative Officer, H. H. Thurlby, 2112 RRB-5310.  
Accounts and Audits Branch, Chief, S. Kudish, 1114 RRB-72772.  
Business Services Branch, Chief, William A. Murphy, 1330 RRB-72522.  
Management Services Branch, Chief, Francis R. Cawley, 2002-D RRB-2197.  
Operating Facilities Branch, Chief, Sydney G. Rodgers, 2046 RRB-74807.  
Personnel Branch, Director, Carlton Hayward, 2014 RRB-71383.

### Legal Division

General Counsel, John Lord O'Brian, 5517 SSB-2221.  
Solicitor, Milton Katz, 5603 SSB-2041.  
Asst. General Counsel, Henry H. Fowler, 4700 SSB-5000.  
Asst. General Counsel, Manly Fleischmann, 5064 SSB-3548.

Asst. General Counsel, Frederick M. Eaton, 4700 SSB-2271.  
Asst. General Counsel, Maurice Heckscher, 4710 SSB-4987.  
Asst. General Counsel, Alexander B. Hawes, 2754 SSB-2385.  
Asst. General Counsel, Herbert S. Marks, 2085 TR-2374.  
Asst. General Counsel, Thomas J. Lynch, 4707 SSB-4779.

### Office of Civilian Supply

Director, Leon Henderson, 4130 Census-5586.  
Deputy Director, Joseph L. Weiner, 2300 SSB-4372.  
Ex. Officer, Norris B. Gaddess, 2300 SSB-4544.  
**Civilian Supply Committee**  
Ex. Sec., Harold Stein, 2309 SSB-3718.  
Consumer Programs Branch, Chief, Roland S. Vaile, 2323 SSB-3964.  
Industrial Programs Branch, Chief, Edward R. Gay, 2313 SSB-73530.  
Services Programs Branch, Chief, Reavis Cox, 2323 SSB-3712.  
Supply and Requirements Branch, Chief, James W. Angell, 2314 SSB-3717.

(To Be Continued)

# PRICES CURRENT

Chemical prices quoted are of American manufacturers for spot New York, immediate shipment, unless otherwise specified. Products sold f.o.b. works are specified as such. Import chemicals are so designated.

Oils are quoted spot New York, ex-dock. Quotations f.o.b.

mills, or for spot goods at the Pacific Coast are so designated.

Raw materials are quoted New York, f.o.b., or ex-dock. Materials sold f.o.b. works or delivered are so designated.

The current range is not "bid and asked," but are prices from different sellers, based on varying grades or quantities or both.

Purchasing Power of the Dollar: 1926 Average—\$1.00 - 1940 Average \$1.20 Jan. 1941 \$1.16 - Dec. 1942 \$0.92

	Current Market	1942 Low	1942 High	1941 Low	1941 High
Acetaldehyde, 99%, 55, 110 gal drs, wks	.11	.11	.11	.11	.11
Acetaldehyde (Aldol), 55, 110 gal drs, c-l, wks	.12	.12	.12	.11	.13
Acetamide, tech, kgs, wks lb.	.28	.50	.28	.50	.45
Acetanilid, tech, cryst, bbls	.29	.31	.29	.31	.31
Acetic Anhydride, drs, c-l, firt all'd	.11½	.13	.11½	.13	.10½
Acetic, tech, lcl drs	.29	.29	.29	.29	.33
Acetone, tks, delv (PC)	.07	.07	.158	.06	.158
Acetone, c-l, delv (PC)	.08½	.08½	.173	.07½	.173
Acetonitrile, drs, wks	1.00	2.00	1.00	2.00	2.00
Acetophenone, drs	1.55	1.60	1.55	1.60	1.60
Acetophenetidin, bbls, kgs, 1000 lbs	1.00	1.00	1.00	1.00	1.00
<b>ACIDS</b>					
Acetic, 28%, bbls (PC) 100 lbs.	3.38	3.63	3.38	3.63	3.43
glacial, nat, bbls	9.15	9.40	9.15	9.40	8.55
synth, drs	9.15	9.40	9.15	9.40	8.55
tk, wks	6.25	6.93	6.25	6.93	
Acetylsalicylic, USP, (PC) special, 200 lb bbls	.45	.45	.45	.45	.45
Standard USP	.40	.40	.40	.40	.40
Adipic, fib drs, wks	.31	.31	.31	.31	.31
Anthranilic, ref'd bbls	1.20	1.25	1.20	1.25	1.20
tech, bbls	.95	.95	.95	.95	.95
Ascorbic, bbls, drs (PC) oz.	1.00	1.07	1.00	1.85	2.10
Battery, clys, wks	1.60	2.55	1.60	2.55	2.55
Benzoic, tech, bbls	.43	.47	.43	.47	.47
USP, bbls	.54	.59	.54	.59	.59
Boric, tech, gran, firt all'd bgs 40 tons	99.00	99.00	99.00	93.50	99.50
bbls	109.00	108.00	109.00	108.00	108.00
Broenner's, bbls	1.11	1.11	1.11	1.11	1.11
Butyric, c-l drs, wks	.22	.22	.22	.22	.22
tk, wks	.21	.21	.21	.21	.21
Caproic, drs, wks	.35	.25	.35	.25	.30
Chlorosulfonic, drs, wks	.03	.04½	.03	.04½	.05
tk, wks	.02½	.02½	.02½	.02½	
Chromic, drs (FP)	.16½	.18½	.16½	.18½	.17½
Citric, crys, gran, bbls	.20	.21	.20	.21	.21
Anhyd gran, drs (PC) lb.	.22½	.26½	.22½	.26½	.26½
Cleve's bbls	.65	.65	.65	.65	.65
Cresylic 50%, 210-215° HB, drs, wks, firt equal (A) gal.	.81	.83	.81	.86	.84
Low Boiling	.81	.83	.81	.86	.84
Formic, tech, clys	.10½	.11½	.10½	.11½	.11½
Fumaric, bbls	.27	.31	.27	.31	.29
Gallic, tech, bbls	1.10	1.12	1.10	1.13	.90
NF bbls	1.27	1.30	1.27	1.30	1.30
H, bbls wks	.45	.45	.45	.45	.45
Hydrochloric, see muriatic					
Hydrocyanic clys, wks	.80	1.00	.80	1.00	1.00
Hydrofluosilic, 35%, bbls lb.	.08	.09	.09	.09½	.09
Hydrofluoric, 30%, bbls, wks	.06	.06½	.06	.06½	.06
Lactic, 22% dark, bbls	.029	.0315	.029	.035	.02½
22%, light, bbls wks	.039	.0415	.039	.0415	.0415
44%, dark, bbls wks	.063	.0655	.063	.0655	.0655
44%, light, bbls wks	.073	.0755	.073	.0755	.073
Lauric, dist, tech, drs	.20	nom.	.20	.20½	.15
Laurent's bbls	.45	.45	.45	.45	.45
Maleic, powd, drs	.30	.30	.30	.30	.30
Anhydride, drs	.25	.26	.25	.26	.26
Malic, powd, kgs	.47	.47	.47	.47	.47
Mixed tks N unit	.05	.06	.05	.06	.06
S unit	.0085	.009	.0085	.009	.0085
Molybdic, kgs, wks	.95	1.10	.95	1.10	1.10
Monochloroacetic, tech, bbls	.17	.17	.17	.15	.18
Monosulfonic, bbls	1.50	1.50	1.50	1.50	1.50
Muriatic, 18° clys, c-l wks	1.50	1.50	1.50	1.50	1.50
tk, wks	1.05	1.05	1.05	1.05	1.05
20° clys, c-l, wks	1.75	1.75	1.75	1.75	1.75
tk, wks	1.15	1.15	1.15	1.15	1.15
22° clys, c-l, wks	2.25	2.25	2.25	2.25	2.25
tk, wks	1.65	1.65	1.65	1.65	1.65
CP clys	.06½	.08	.06½	.08	.08
Myristic, dist, drs	.19	.19½	.18	.19½	.18
Naphthenic drs, 220-230	.13	.14	.10	.14	.10
tk, wks (A)	.10	.13	.09	.13	.09
<b>Acids (continued):</b>					
Naphthionic, tech, bbls	.60	.65	.60	.65	.65
Nicotinic fib-dms (Niacin) lb.	5.00	5.50	5.00	7.15	7.15
Nitric, 36°, clys, c-l, wks	5.00	5.00	5.00	5.00	5.00
38°, c-l, clys, wks 100 lbs. c	5.50	5.50	5.50	5.50	5.50
40°, c-l, clys, wks 100 lbs. c	6.00	6.00	6.00	6.00	6.00
42°, c-l, clys, wks 100 lbs. c	6.50	6.50	6.50	6.50	6.50
CP, clys	.11½	.13	.11½	.13	.13
Oxalic, bbls, wks (PC)	.11½	.12½	.11½	.14½	.14½
Phosphoric, 85% USP, clys	.12	.12	.12	.12	.12
50% food grade, c-l, bbls, wks, firt equal	4.00	4.25	4.00	4.25	4.25
Picramic, kgs	.65	.70	.65	.70	.65
Picric, bbls, wks	.35	.35	.35	.35	.35
Propionic, pure, drs, wks lb.	.14	.14	.14	.14	.14
tk, wks	.11	.11	.11	.11	.11
Pyrogalllic, tech, lump, powd, bbls	1.45	1.45	1.45	1.45	1.45
USP, cryst, dms	2.10	2.15	2.10	2.15	2.25
Pyroligneous, bbls, delv gal.	.25	.25	.25	.25	.25
Ricinoleic, tech, drs, wks lb.	.32	.37	.32	.37	.32
Salicylic, tech, 125 lb bbls, wks (PC)	.33	.33	.33	.33	.33
USP, bbls	.35	.46	.35	.46	.40
Sebacic, tech, bbls, wks	.65	.69	.65	.82	.82
Stearic, see under Oils & Fats					
Succinic, bbls	.75	.75	.75	.75	.75
Sulfanilic, 250 lb drs, wks lb.	.17	.17	.17	.17	.17
Sulfuric, 60°, tks, wks ton	13.00	13.00	13.00	13.00	13.00
c-l, clys, wks	1.25	1.25	1.25	1.25	1.25
66°, tks, wks ton	16.50	16.50	16.50	16.50	16.50
c-l, clys, wks	1.50	1.50	1.50	1.50	1.50
CP, clys, wks	.06½	.08	.06½	.08	.08
Fuming (Oleum) 20% tks, wks	19.50	19.50	19.50	18.50	19.50
Tannic, tech, 300 lb bbls lb.	.71	.73	.71	.73	.73
Tartaric, USP, gran, powd, 300 lb bbls	.70½	.70½	.70½	.46½	.70½
Tobias, 250 lb bbls	.55	.60	.55	.60	.60
Trichloroacetic bottles	2.00	2.50	2.00	2.50	2.50
Tungstic, pure 100 lb.	2.86	2.86	2.86	no prices	
pk, (A)	.39	.34	.39		
Acrylonitrile, tks (A)	.65	.70	.65	.75	.75
Albumen, light flake, 225 lb bbls	.13½	.12½	.14	.13	.18
dark, bbls	1.75	1.76	1.73	1.85	1.85
egg, edible					
Alcohol, Amyl (from Pentane) tks, delv	.131	.131	.131	.111	.131
c-l, drs, delv	.141	.141	.141	.121	.141
lcl, drs, delv	.151	.151	.151	.131	.151
Amyl, normal lcl drs	.27	.25	.27	.25	.27
Wyandotte, Mich					
secondary, tks, delv	.09½	.09½	.09½	.09½	.09½
Rockies	.09	.09	.09	.09	.09
tertiary, rfd, lcl, drs, f.o.b., Wyandotte, firt all'd	.65	.75	.65	.75	.75
Benzyl, cans	.10¾	.14¾	.10¾	.168	.158
Butyl, normal, tks, f.o.b. wks, firt all'd (PC)	.11¾	.15¾	.11¾	.173	.168
(A) c-l, drs, f.o.b. wks, firt all'd	.08½	.08½	.08½	.07½	.08½
Butyl, secondary, tks, delv	.09½	.09½	.09½	.08½	.09½
c-l, drs, delv	.12½	.12½	.12½	.12½	.12½
Butyl, tert denat c-l drs lb.	.13	.13	.13	.13	.13
lcl drs	.11½	.11½	.11½	.11½	.11½
tk, wks	.16	.16	.16	.16	.16
Capryl, drs, crude, wks lb.	3.00	3.60	3.00	3.60	3.60
Cinnamic, bottles	.65	.65	.65	.36½	.45½
Denatured, CD, 14, c-l drs, wks (PC, FP) gal.	.58	.58	.58	.26½	.58
tk, East, wks	.53	.53	.53	.28½	.53
Denatured, SD, No. 1, tks.	.11¾	.15	.11¾	.15	.09½
Diacetone, pure, c-l drs, delv	.10¾	.13¾	.10¾	.13¾	.10¾
tk, delv	.11	.13½	.11	.13½	.09
tech, contract, drs, c-l, delv	.10	.12½	.10	.14	.10
tk, delv					

a Powdered boric acid \$5 a ton higher; USP \$25 higher; b Powdered citric is ½c higher; kees are in each case ½c higher than bbls; Prices are f.o.b. N. Y., Chicago, St. Louis, deliveries ½c higher than NYC prices; y Price given is per gal.

(A) Allocation. (FP) Under full priority control. (PC) Under price ceiling.

c Yellow grades 25c per 100 lbs. less in each case. d Prices given are Eastern schedule; Territories other east of Rockies and 15½c per gal. less than Eastern Works price.

ABBREVIATIONS—Anhydrous, anhyd; bags, bgs; barrels, bbls; carboys, clys; carlots, c-l; less-than-carlots, lcl; drums, drs; kegs, kgs; powdered, powd; refined, ref'd; tanks, tks; works, f.o.b., wks.

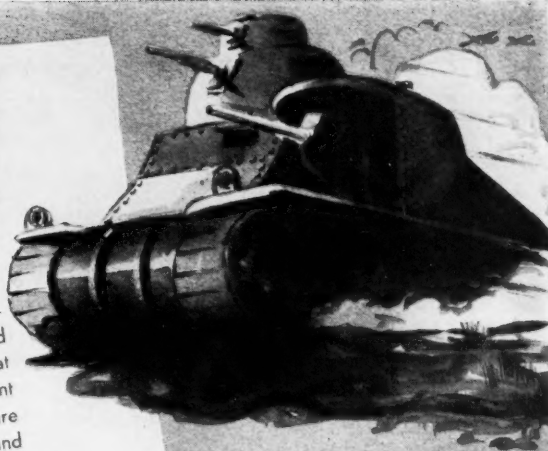
# RESINS FIGHT FOR AMERICA'S FUTURE



RESINS are important in the War effort, therefore our research has been successfully directed towards the manufacture of S & W Resins that meet the specifications set up by the Government agencies. Where critical raw materials are involved, we are delivering resins against the proper preference ratings, and whenever possible are maintaining stocks in the large production centers throughout the country so that they are available to manufacturers without delay.

We anticipate having, as before, for use in the production of essential civilian finishes, limited quantities of certain resins that do not require critical raw materials.

**STROOCK & WITTENBERG Corp.**  
60 EAST 42nd STREET  
NEW YORK CITY



## THE COMPLETE RESIN LINE

"S & W" ESTER GUM—all types

"AROFENE"—pure phenolics

"AROCHEM"—modified types

"CONGO GUM"—

raw, fused and esterified

"AROPLAZ"—alkyds

NATURAL RESINS—

all standard grades

\* Registered U. S. Patent Office

# CAUSTIC SODA

Flake and Solid

## LIQUID CAUSTIC SODA

Tank Cars • Tank Wagons • Drums

**JOSEPH TURNER & CO.**

RIDGEFIELD, NEW JERSEY

83 Exchange Place  
Providence, R. I.

40th St. & Calumet Ave.  
Chicago, Ill.

# Chemicals for Industry

Alcohol, Ethyl  
Ammonium Sulfate

Prices Current

Ammonium Sulfoeyanide  
Bone Ash

	Current Market	1942 Low High		1941 Low High	
Alcohols (continued):					
Ethyl, 190 proof molasses, tks.....	11.92	8.12	11.92	5.96½	8.12
c-l, drs.....	12.02½	8.19	12.02½	6.02½	8.19
c-l, bbls.....	12.06½	8.25½	12.06½	6.03½	8.25
Furfuryl, tech, 500 lb drs lb.	.20	.35	.20	.35	.20
Hexyl, secondary tks, delv lb.	.23	...	.23	.12	.23
c-l, drs, delv.....	.24	...	.24	...	.13
Isoamyl, prim, cans, wks lb.	.32	...	.32	...	.32
drs, lcl, delv.....	.22½	...	.22½	.22½	.27
Isobutyl, ref'd, lcl, drs lb.	.086	...	.086	.079	.086
c-l, drs.....	.076	...	.076	.069	.076
ethyl.....	.076	...	.076	.069	.076
Ethylhexyl, tks, wks.....	.23	.25	.23	.25	.23
Isopropyl, ref'd, 91% drs, frt all'd.....	.39	.43½	.40½	.43½	.40½
tks, frt all'd.....	.34	...	.34	.34	.34
99%, drs, frt all'd.....	.44	.47	.44	.47	.44
tks, frt all'd.....	.37½	...	.37½	.37½	.37½
Octyl, see Ethylhexyl.....	.65	.54	.65	.26	.54
Polyvinyl A fib drs.....	.60	.65	.60	.70	...
B fib drs.....	.67	.70	.69	.75	...
Propyl, nor, drs, wks gal.	...	.61	.61	.70	...
Spec Solvents, East, drs, tks, East, wks.....	...	.54	.54	.66	...
Tetrahydrofurfuryl drs, f.o.b. wks.....	.44	.50	.44	.50	...
Aldehyde ammonia, 100 gal drs.....	.65	.70	.65	.70	.65
Aldehyde Bisulfite, bbls, lb. delv.....	.17	...	.17	...	.17
Aldol, 95%, 55 and 110 gal, drs, delv.....	.12	.15	.12	.15	.11
Alphanaphthol, crude, 300 lb bbls.....	.52	...	.52	...	.52
Alphanaphthylamine, 350 lb bbls.....	.32	...	.32	...	.32
Alum, ammonia, lump, c-l, bbls, wks.....	4.25	...	4.25	3.75	4.25
Granular, c-l, bbls, 100 lb. delv NY, Phila.....	4.25	...	4.25	3.75	4.25
Powd, c-l, bbls, wks 100 lb.	4.00	...	4.00	3.50	4.00
Potash, lump, c-l, bbls, 100 lb. wks.....	4.40	...	4.40	3.90	4.40
Granular, c-l, bbls, 100 lb. wks.....	4.50	...	4.50	4.00	4.50
Powd, c-l, bbls, wks 100 lb.	4.25	...	4.25	3.75	4.25
Soda, bbls, wks.....	4.65	...	4.65	4.15	4.65
Chrome, bbls.....	3.25	...	3.25	...	3.25
Aluminum metal, c-l, (FP).....	12½	.15	12½	.15	no prices
Acetate, 20%, nor sol, bbls.....	15.00	16.00	15.00	16.00	17.00
Basic powd, bbls, delv lb.	.09½	.10½	.09½	.11	.10½
24% sol, bbls, delv lb.	.40	.50	.40	.50	.35
Chloride anhyd 99% wks lb.	.10½	.11	.10½	.11	.09½
Crystals, c-l, drs, wks lb.	.08	.12	.08	.12	.08
Solution, drs, wks.....	.06	.06½	.06	.06½	.06
Formate, 30% sol bbls, c-l, delv.....	.02½	.03½	.02½	.03½	.02½
Hydrate, 96%, light, 90 lb. bbls, delv (A).....	.13	.15	.13	.15	.13
heavy, bbls, wks.....	...	.14½	...	.14½	.12½
Oleate, drs.....	.034	...	.034	.029	.034
Palmitate, bbls.....	.24½	.17½	.26	.17½	.20
Resinate, pp., bbls.....	.25	.26	.25	.26	.20½
Stearate, 100 lb bbls.....	.15½	.15	.15½	...	.15
Sulfate, com, c-l, bgs, wks.....	.23	.24	.22	.24	.18
c-l, bbls, wks.....	1.15	1.25	1.15	1.25	1.15
Sulfate, iron-free, c-l, bgs, wks.....	1.35	1.45	1.35	1.45	1.35
c-l, bbls, wks.....	1.75	1.85	1.75	1.85	1.60
Ammonia anhyd fert com, tks lb.	1.95	2.05	1.95	2.05	1.80
Ammonia anhyd, 100 lb cyl lb.	.04½	.05	.04½	.05	.04½
26°, 800 lb drs, delv.....	...	.16	...	.16	...
Aqua 26°, tks, NH <sub>3</sub> cont.	.02½	.02½	.02½	.02½	.02½
Ammonium Acetate, kgs.....	...	.04	.04	.08½	.04
Bicarbonate, bbls, f.o.b., wks.....	.27	.33	.27	.33	.27
Bifluoride, 300 lb bbls.....	.0564	.0614	.0564	.0614	.0564
Carbonate, tech, 500 lb bbls.....	.16	.18	.15½	.18	.14
Chloride, White, 100 lb. bbls, wks.....	.08½	.09½	.08½	.09½	.08½
Gray, 250 lb bbls, wks.....	4.45	4.45	...	4.45	...
Lactate, 500 lb bbls.....	5.50	5.75	5.50	5.75	5.50
Laurate, bbls.....	.15	.16	.15	.16	.15
Linoleate, 80% anhyd, bbls.....	.23	...	.23	...	.23
Nitrate, tech, bgs, bbls lb.	...	.12	...	.12	...
Oleate, drs.....	.0435	.0455	.0435	.0455	.0435
Oxalate, neut, cryst, powd, bbls.....	...	.14	...	.14	...
Perchlorate, kgs (A).....	.23	.29	.23	.29	.19
Persulfate, 112 lb kgs lb.	.55	.65	.55	.65	.55
Phosphate, dibasic tech, powd, 325 lb bbls.....	.25½	.28½	.21	.28½	.21
Ricinoleate, bbls.....	...	.07½	.09½	.09½	.07½
Stearate, anhyd, bbls.....	...	.15	...	.15	...
Paste, bbls.....	...	.24½	...	.24½	...
Sulfate, dom, f.o.b., bulk (A).....	...	.06½	...	.06½	...
ton	29.00	30.00	29.00	30.00	29.00

On a f.o.b. wks. basis.  
(A) Allocation.

	Current Market	1942 Low High		1941 Low High	
Ammonium (continued):					
Sulfoeyanide, pure, kgs lb.	.45	.55	.45	.55	.45 .65
Amyl Acetate (from pentane)					
tks, delv .....	...	.145	...	.145	.105 .145
c-l, drs, delv .....	...	.155	...	.155	.115 .155
lcl, drs, delv .....	...	.165	...	.165	.125 .165
tech drs, ex-fusel oil delv lb.	.13	.18	.14 1/2	.18	...
Secondary, tks, delv .....	...	.08 1/2	...	.08 1/2	...
c-l, drs, delv .....	...	.09 1/2	...	.09 1/2	...
tks, delv .....	...	.08 1/2	...	.08 1/2	...
Chloride, norm, drs, wks lb.	...	no prices	.56	.68	.56 .68
mixed lcl drs, wks .....	...	.08	...	.08	.0565 .08
tks, wks .....	...	.06	...	.06	.0465 .06
Amyl Ether (see Diamyl)					
lcl, drs .....	...	.102	...	.102	...
cl, drs .....	...	.095	...	.095	...
tks .....	...	.085	...	.085	...
Mercaptan, drs, wks .....	...	1.10	...	1.10	...
Oleate, lcl, wks, drs .....	...	.31	...	.31	.25 .31
Stearate, lcl, wks, drs .....	...	.32 1/2	...	.32 1/2	.26 .335
Amylene, c-l, drs, f.o.b.					
wks .....	...	.10 1/2	.102	.11	.102 .11
lcl, drs, f.o.b., wks .....	...	.11	...	.11	...
tks, f.o.b., wks .....	...	.09	...	.09	...
Amylnaphthalenes, see Mixed					
Amylnaphthalenes					
Aniline Oil, 960 lb drs and					
tks .....	...	.12 1/2	.16	.12 1/2	.16 .14 1/2
Annatto fine .....	.34	.39	.34	.39	.34 .39
Anthracene, 80-85% .....	...	.55	...	.55	...
Anthraquinone, sublimed, 125					
lb bbls .....	...	.70	...	.70	.65 .70
Antimony metal slabs, ton					
lots .....	...	.14 1/2	.14	.14 1/2	.14 .16 1/2
Butter of, see Chloride					
Chloride, soln, clys .....	...	.17	...	.17	...
Needle, powd, bbls .....	...	.18 1/2	.20	.18 1/2	.20 .16
Oxide, 500 lb bbls (A) lb.	.15	.15 1/2	.15	.16 1/2	.12 .16 1/2
Salt, 63% to 65%, drs lb.	...	.40	.34	.40	.28 .34
Archil, conc, 600 lb bbls lb.	...	.26	...	.26	no prices
Aroclors, wks .....	...	.18	.30	.18	.30
Arrowroot, bbls .....	...	.09 1/2	.09 1/2	.09 1/2	.10 1/2 .09 1/2
Arsenic, Metal .....	...	no prices	...	no prices	...
Red, 224 lb cs kgs .....	...	no prices	...	no prices	...
White, 112 lb kgs (A) lb.	.04	.04 1/2	.04	.04 1/2	.03 1/2 .04 1/2
B					
Barium Carbonate precip,					
200 lb bgs, wks .....	55.00	65.00	55.00	65.00	45.00 65.00
Nat (witherite) 90% gr,					
c-l, wks, bgs .....	...	43.00	...	43.00	...
Chlorate, 112 lb kgs,					
NY (A) .....	...	.60	...	.60	...
Chloride, 600 lb bbls, delv,					
zone 1 .....	77.00	92.00	77.00	92.00	77.00 92.00
Dioxide, 88%, 690 lb drs lb.	...	.10	...	.10	...
Hydrate, 500 lb bbls .....	...	.06	.07	.06	.07 .05 1/2
Nitrate, bbls .....	...	.11	.12	.10 1/2	.12 1/2 .08 1/2
Barytes, floated, 350 lb bbls					
c-l, wks .....	...	27.65	...	27.65	25.15 27.65
Bauxite, bulk mines (A) ton	7.00	10.00	7.00	10.00	7.00 10.00
Bentonite, c-l, 325 mesh, bgs,					
wks .....	...	16.00	...	16.00	...
200 mesh .....	...	11.00	...	11.00	...
Benzaldehyde, tech, 945 lb.					
drs, wks .....	.45	.55	.45	.55	.45 .55
Benzene (Benzol), 90%, Ind.					
8000 gal tks, ft all'd gal.	(A)	.15	...	.15	.14 .15
90% c-l, drs .....	...	.20	...	.20	.19 .20
Ind pure, tks, frt all'd gal.	...	.15	...	.15	.14 .15
Benzidine Base, dry, 250 lb.					
bbls .....	...	.70	...	.70	...
Benzoyl Chloride, 500 lb drs lb.	.23	.28	.23	.28	.23 .28
Benzyl Chloride, 95-97% rfd,					
drs .....	.22	.24	.22	.24	.19 .24
Beta-Naphthol, 250 lb bbls,					
wks .....	.23	.24	.23	.24	.23 .24
Naphthylamine, sublimed,					
200 lb bbls .....	...	1.25	1.25	...	1.25 1.35
Tech, 200 lb bbls .....	...	.51	...	.51	.51 .52
Bismuth metal .....	...	1.25	...	1.25	...
Chloride, boxes .....	...	3.00	...	3.00	3.00 3.25
Hydroxide, boxes .....	3.35	3.46	3.35	3.46	3.35 3.46
Oxychloride, boxes .....	3.10	3.19	3.10	3.19	3.10 3.19
Subbenzoate, fib drs .....	...	3.40	...	3.40	...
Subcarbonate, kgs .....	1.59	1.85	1.59	1.85	1.59 1.85
Subnitrate, fibre, drs .....	1.29	1.33	1.29	1.57	1.20 1.57
Trioxide, powd, boxes .....	...	3.65	...	3.65	...
Blanc Fixe, Pulp, 400 lb bbls,					
wks .....	40.00	46.50	40.00	46.50	35.00 46.50
Bleaching Powder, 800 lb drs,					
c-l, wks, contract 100 lb.	2.25	3.10	2.25	3.10	2.00 3.10
lcl, drs, wks .....	2.50	3.35	2.50	3.35	2.25 3.35
Blood, dried, f.o.b., NY unit	...	4.95	5.25	5.75	4.75 5.25
Chicago, high grade .....	...	5.38	5.40	5.90	5.00 5.40
Imported shipt .....	...	nom.	5.00	5.50	4.75 5.00
Blues, Bronze Chinese					
Prussian Soluble .....	...	.36	...	.36	.33 .36
Milori, bbls .....	...	.36	...	.36	.33 .36
Ultramarine,* dry, wks,					
bbls .....	.12	.13	.11	.13	...
Regular grade, group 1 lb.	.17	.27	.16	.27	.16 .20
Pulp, Cobalt grade .....	.23	.27	.22	.27	.22 .24
Bone, 4 1/2 + 50% raw,					
Chicago .....	...	39.50	39.00	40.00	30.00 40.00
Bone Ash, 100 lb kgs .....	.06	.07	.06	.07	.06 .07

\* Lowest price is for pulp; highest for high grade precipitated; i Cry-  
tals \$6 per ton higher; USP, \$15 higher in each case; \* Freight is  
equalized in each case with nearest producing point.

# ABC

## U. S. P. FORMALDEHYDE

Manufactured by  
Our Associated Company

KAY FRIES CHEMICALS, INC.

West Haverstraw, New York

TANK CARS - BARRELS - DRUMS

AMERICAN-BRITISH CHEMICAL SUPPLIES, Inc.  
180 MADISON AVE., NEW YORK, N.Y.

### Church & Dwight Co., Inc.

*Established 1846*

70 PINE STREET

NEW YORK

Bicarbonate of Soda

Sal Soda

Monohydrate of Soda

*Standard Quality*

**Bone Ash Meal**  
**Chloroacetophenone**

**Prices Current**

**Chlorobenzene**  
**Diethylcarbonate**

	Current Market	1942 Low	1942 High	1941 Low	1941 High
Bone Ash (continued):					
Meal, 3% & 50% imp ton	37.50	37.50	31.50	37.50	
Domestic, bgs, Chicago ton	38.00	40.00	38.00	40.00	40.00
Borax, tech, gran, 80 and 40 ton lots, bgs, delv ton	46.00	45.00	46.00	43.00	43.00
bbls, delv (FP) ton	55.00	54.00	55.00	53.00	56.00
Tech, powd, 80 and 40 ton lots, bgs	51.00	50.00	51.00	48.00	50.00
bbls, delv ton	60.00	59.00	60.00	58.00	61.00
Bordeaux Mixture, drs lb	.11	.11	.11	.11	.11
Bromine, cases lb	.25	.30	.25	.30	.30
Bronze, Al, powd, 300 lb drs (FP) lb	.59	.59	.59	.57	.57
Gold, blk lb	.60	.65	.60	.65	.65
Butanes, com 16-32° group 3 tks (PC)	.02%	.03%	.02%	.03%	.03%
Butyl, acetate, norm drs, frt all'd lb	.124	.1575	.124	.168	.168
tk, frt all'd lb	.1115	.1475	.1115	.158	.158
Secondary, tks, frt all'd lb	.08%	.08%	.08%	.07%	.08%
dr, frt all'd lb	.09%	.09%	.09%	.08%	.09%
Aldehyde, 50 gal drs, wks lb	.14%	.16%	.14%	.17%	.17%
Carbinol, norm (see Normal Amyl Alcohol)					
Chloride, normal lcl, drs lb	.35	.28	.35		
c-l, drs lb	.32	.25	.32		
Crotonate, norm, 55 and 110 gal drs, delv lb	.35	.35	.35	.35	
Lactate lb	.26%	.26%	.26%	.23%	
Oleate, drs, frt all'd lb	.35	.25	.35	.25	
Propionate, drs lb	.16%	.17	.16%	.17	
tk, delv lb	.15%	.15%	.35	.25	
Stearate, 50 gal drs lb	.31	.31	.28%	.32%	
Tartrate, drs lb	no prices	no prices	.55	.60	
Butyraldehyde, drs, lcl, wks lb	.35%	.35%	.35%	.35%	
C					
Cadmium Metal (PC) lb	.90	.95	.90	.80	.95
Sulfide, orange, boxes lb	1.10	1.10	1.10	1.10	1.10
Calcium, Acetate, 150 lb bgs c-l, delv 100 lb	3.00	4.00	3.00	4.00	4.00
Arsenate, c-l, E of Rockies, dealers, drs lb	.07	.08	.06%	.08	.06%
Carbide, drs (A) lb	.04%	.04%	.04%	.04%	
Carbonate, tech, 100 lb bgs, c-l ton	16.00	20.00	16.00	20.00	20.00
Chloride, flake, 375 lb drs, burlap bgs, c-l, delv ton	21.00	21.00	21.00	20.50	
paper bgs, c-l, delv ton	18.50	41.00	18.50	41.00	35.00
Solid, 650 lb drs, c-l, delv ton	18.00	34.50	18.00	34.50	34.50
Ferrocyanide, 350 lb bbls wks lb	.20	.20	.20	.20	
Gluconate, Pharm, 125 lb bbls lb	.52	.59	.52	.59	.59
Levulinate, less than 25 bbl lots, wks lb	3.00	3.00	3.00	3.00	
Nitrate, 100 lb bgs ton	no prices	no prices	no prices	no prices	
Palmitate, bbls lb	.28	.29	.28	.22	.29
Phosphate, tribasic, tech, 450 lb bbls lb	.0635	.0705	.0635	.0705	.0705
Resinate, precip, bbls lb	.15	.16	.13	.16	.14
Stearate, 100 lb bbls lb	.26	.27	.26	.27	.20%
Camphor, slabs lb	1.60	1.65	1.60	1.65	.73
Powder lb	1.60	1.65	1.60	1.65	.63
Carbon Bisulfide, 500 lb drs lb	.05	.05%	.05	.05%	.05%
Black, c-l, bgs, f.o.b. plants lb	.03625	.03625	.03625	.03325	.0342
Decolorizing, drs, c-l lb	.08	.15	.08	.15	.08
Dioxide, Liq, 20-25 lb cyl lb	.06	.08	.06	.08	.08
Tetrachloride, (FP) (PC) 55 or 110 gal drs, c-l, delv lb	.83	.73	.83	.66%	.73
Casein, Standard, Dom, grd lb	.19	.21	.15	.30%	.11%
80-100 mesh, c-l bgs lb	.19%	.21%	.15%	.31	.12
Castor Pomace, 5% NH <sub>3</sub> , c-l, bgs, wks (PC) ton	19.00	16.00	19.00	15.00	16.00
Imported, ship, bgs ton	no prices	no prices	no prices	no prices	
Celluloid, Scraps, ivory cs lb	.13	.15	.13	.15	.15
Transparent, cs lb	.20	.20	.20	.20	.20
Cellulose, Acetate, frt all'd, 50 lb kgs lb	.30	.35	.30	.35	.30
Triacetate, flake, frt all'd lb	.30	.30	.30	.30	.30
Chalk, dropped, 175 lb bbls lb	.02%	.02%	.02%	.02%	.02%
Precip, heavy, 560 lb cks 100 lbs	32.50	32.50	32.50	32.50	32.50
Charcoal, Hardwood, lump, blk, wks bu	.15	.15	.15	.15	.15
Softwood, bgs, delv ton	27.50	38.50	25.00	38.50	25.00
Willow, powd, 100 lb bbls, wks lb	.06	.07	.06	.07	.07
Chestnut, clarified tks, wks lb	.0225	.0225	.0225	.01%	.0275
25%, bbls, wks lb	.0275	.0275	.0275	.0240	.0275
China Clay, c-l, blk mines ton	7.60	7.60	7.60	7.60	7.60
Imported, lump, blk ton	19.00	24.00	18.60	24.00	18.60
Chlorine, cyls, lcl, wks, contract (FP) (A) lb	.07%	.07%	.07%	.07%	.07%
cyls, c-l, contract lb	.05%	.05%	.05%	.05%	.05%
Liq, tk, wks, contract 100 lb	1.75	1.75	1.75	1.75	1.75
Multi, c-l, cyls, wks, cont lb	2.00	2.00	2.00	1.90	2.00
Chloroacetophenone, tins, wks lb	3.00	3.50	3.00	3.50	3.00

i A delivered price; \* Depends upon point of delivery.  
(FP) Full Priority. (PC) Price Ceiling.  
(A) Allocation.

	Current Market	1942 Low	1942 High	1941 Low	1941 High
Chlorobenzene, Mono, 100 lb. drs, lcl, wks lb	.08	.08	.06	.08	
Chloroform, tech, 650 lb. drs lb	.20	.20	.20	.20	
USP, 650 lb drs lb	.30	.30	.30	.30	
Chloropierin, comml cyls lb	.80	.80	.80	.80	
Chrome, Green, CP lb	.23	.23	.21	.25	
Yellow lb	.16	.17	.17	.13%	.14%
Chromium Acetate, 8% Chrome, bbls lb	.07%	.07%	.08%	.07%	.08%
Fluoride, powd, 400 lb bbls lb	.27	.28	.27	.28	.28
Coal tar, bbls bbl	8.25	9.25	7.50	9.25	7.50
Cobalt Acetate, bbls (A) lb	.83%	.83%	.80%	.83%	.83%
Carbonate tech, bbls (A) lb	1.58	1.58	1.58	1.58	1.58
Hydrate, bbls (A) lb	2.04	2.04	1.98	2.04	2.04
Linoleate, solid, bbls lb	.44	.42	.44	.33	.42
paste, 5%, drs lb	.32	.31	.35	.31	.31
Oxide, black, bgs (A) lb	1.84	1.84	1.84	1.84	1.84
Resinate, fused, bbls lb	.15	.13%	.15	.13%	.13%
Precipitated, bbls lb	.38	.34	.38	.34	.34
Cochineal, gray or bk bgs lb	.37	.37	.37	.37	.37
Teneriffe silver, bgs lb	.38	.39	.38	.39	.39
Copper, metal FP, PC 100 lb	12.00	12.50	12.00	12.50	12.00
Acetate, normal, bbls, delv lb	.24	.26	.24	.26	.26
Carbonate, 52-54% 400 lb bbls lb	.18	.20%	.18	.20%	.1650
Chloride, 250 lb bbls (A) lb	.23%	.19%	.23%	.16	.19%
Cyanide, 100 lb drs lb	.34	.38	.38	.34	.38
Oleate, precip, bbls lb	.22	.29%	.20	.29%	.20
Oxide, black, bbls, wks lb	.19%	.21	.19%	.21	.18
red 100 lb bbls lb	.20	.22	.20	.22	.19
Sub-acetate verdigris, 400 lb bbls lb	.18	.19	.18	.19	.18
Sulfate, bbls, c-l, wks (A) 100 lb	5.15	5.50	5.15	5.50	4.75
Copperas crys and sugar bulk c-l, wks ton	17.00	17.00	17.00	14.00	17.00
Corn sugar, tanners, bbls 100 lb	3.54	3.54	4.05	3.36	4.05
Corn Syrup, 42°, bbls 100 lb	3.69	3.52	3.69	3.43	3.52
43°, bbls 100 lb	3.74	3.57	3.74	3.47	3.57
Cotton, Soluble, wet 100 lb bbls lb	.40	.42	.40	.42	.42
Cream Tartar, powd & gran 300 lb bbls lb	.57%	.57%	.38%	.57%	.57%
Creosote, USP 42 lb chys lb	.60	.77	.60	.77	.77
Oil, Grade 1 tks gal	.15%	.15%	.15%	.13%	.15%
Grade 2 tks gal	.122	.132	.122	.132	.132
Cresol, USP, drs, c-l (A) lb	1.04%	.11%	.10%	.11%	.11%
Crotonaldehyde, 97%, 55 and 110 gal drs, wks lb	.15	.15	.15	.11	.15
Cutch, Philippine, 100 lb bale lb	no supplies	.05%	.04%	.05%	
Cyanamid, pulv, bgs, c-l, frt (A) all'd, nitrogen basis, unit	1.62%	no prices			1.40
D					
Derris root 5% rotenone, bbls lb	.35	.40	.45	.21	.40
Dextrin, corn, 140 lb bgs f.o.b., Chicago 100 lb	4.00	4.00	3.80	4.00	4.00
British Gum, bgs 100 lb	4.25	4.25	4.05	4.25	
Potato, Yellow, 220 lb bgs lb	.10	.09%	.10	.08	.08%
White, 220 lb bgs, lcl lb	.09%	.11%	.09%	.11%	.09%
Tapioca, 200 bgs, lcl lb	.0715	.0715	.0715	.0715	.0715
White, 140 lb bgs 100 lb	3.95	3.95	3.75	3.95	
Diamylamine, c-l, drs, wks lb	.61	.50	.61	.47	.50
lcl, drs, wks lb	.64	.53	.64	.48	.53
Diamylene, drs, wks lb	.105	.105	.105	.095	.105
lcl, drs lb	.112	.112	.112	.105	.105
tk, wks lb	.09%	.09%	.08%	.09%	.09%
Diamylether lb	.112	.102	.112	.085	.102
lcl, drs lb	.105	.095	.105		
c-l, drs lb	.095	.085	.095		
Diamylphenol, lcl, drs, f.o.b. wks lb	.17	.17	.17	.17	.20
Diamylphenol, lcl, drs lb	.21	.21	.21	.21	.21%
Diamylphenolate, drs, wks lb	.22	.21	.22	.21	.21%
Diamyl Sulfide, drs, lcl lb	.25	.25	.25		
Diatomaceous Earth, see Kieselguhr.					
Dibutoxy Ethyl Phthalate, drs, wks lb	.35	.35	.35	.35	.35
Dibutylamine, lcl, drs, wks lb	.64	.53	.64	.48	.53
c-l, drs, wks lb	.61	.50	.61	.47	.50
tk, wks lb	.59	.48	.59	.48	.48
Dibutyl Ether, drs, wks, lcl lb	.26	.28	.28	.25	.28
Dibutylphthalate, drs, wks, frt all'd lb	.21	.23%	.21	.23%	.19
Dibutyltartrate, 50 gal drs lb	.92	.87	.92	.50	.87
Dichloroethylene, drs lb	.25	.25	.25	.25	.25
Dichloroethylene, 50 gal tks, wks lb	.15	.15	.15	.15	.15
tk, wks lb	.14	.14	.14	.14	.14
Dichloromethane, drs, wks lb	.23	.23	.23	.23	.23
Dichloropentanes, c-l, drs lb	.037	.037	.025	.04	
lcl, drs lb	.045	.045	.045	.045	.045
tk, wks lb	.03	.03	.03	.0221	.025
Diethanolamine, tks, wks lb	.22%	.22%	.22%	.22%	.22%
Diethylamine, 300 lb drs, lcl, f.o.b., wks lb	.81	.70	.81		.70
Diethylamino Ethanol, lcl, drs, f.o.b. Wyandotte, frt lb	.75	.75	.85		.75
all'd E. Miss lb	.40	.40	.40		.40
Diethylaniline, 850 lb drs lb	.25	.25	.25		.25

\* These prices were on a delivered basis.

# AMORPHOUS MINERAL WAXES

## CROWN QUALITY



Color	-	-	-	-	-	Black
Melting Point	-	-	-	-	-	190° F. min.
Penetration at 77° F.—100 grms. 5 secs.	-	-	-	-	-	10 max.
Color	-	-	-	-	-	Amber
Melting Point	-	-	-	-	-	200° F. min.
Penetration at 77° F.—100 grms. 5 secs.	-	-	-	-	-	5 max.
Odor	-	-	-	-	-	None



## GEM QUALITY

Color	-	-	-	-	-	From Amber 5 N.P.A. to Yellow 2 N.P.A.
Melting Point	-	-	-	-	-	185° F. min.
Penetration at 77° F.—50 grms. 5 secs.	-	-	-	-	-	20 min.
Odor	-	-	-	-	-	None



## PEARL QUALITY

Color	-	-	-	-	-	Amber 5 N.P.A.
Melting Point	-	-	-	-	-	180° F. min.
Penetration at 77° F.—50 grms. 5 secs.	-	-	-	-	-	30 min.
Odor	-	-	-	-	-	None

*Manufactured by*

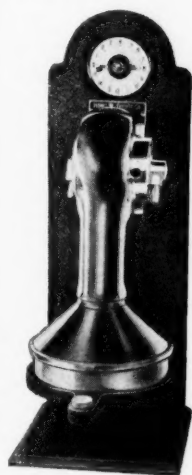
**AMERICAN WAX REFINING CORP.**

CAVEN POINT ROAD

Phone BErgen 4-3237, 3238

JERSEY CITY, N. J.

*Rapid  
Accurate*

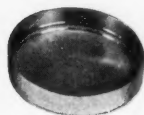


## MOISTURE CONTROL

with the

## DIETERT MOISTURE TELLER

The Dietert Moisture Teller determines moisture content accurately and rapidly by forcing electrically heated air through the test sample. The drying temperature may be controlled closely with a thermo regulator. Cost of operation is very low. Used by many of the largest chemical and allied industry plants.



For plant and laboratory use in the chemical, ceramic, food, foundry, paper, pulp, rubber, salt, sugar, textile and tobacco industries.

Send **TODAY** for full information

**HARRY W. DIETERT CO.**

9330 Roselawn Ave.

Detroit, Michigan



It started as a few hentracks on a sheet of paper — it ended in a burst of glory in the dead center of an axis ship. Like all America's highly effective weapons it began as a dream translated into drawings and figures. And like so many of America's inventions for both war and peace, it began as a blueprint paper produced with . . . . .

## HUNT'S POTASSIUM FERRICYANIDE

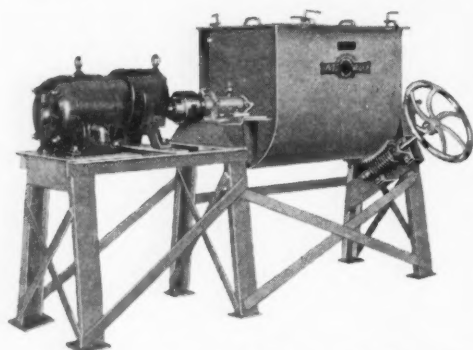
(Red Prussiate of Potash)

Manufactured by

**HUNT CHEMICAL WORKS, inc.**  
271 Russell Street, Brooklyn, N. Y.

## Simplicity-Efficiency

Describe the Design and Operating Principles of this Tilt-Tub Mixer



Complete discharge and ease of cleaning are among the features of this mixer. With the mixer built of non-corrosive metal, this unit is of unlimited value to the manufacturer who desires to mix different products in the same machine. Tell us your requirements and ask for complete details.

**SPROUT, WALDRON & COMPANY, INC.**

119 Sherman Street

Muncy, Pennsylvania

Engineers—Designers—Manufacturers  
Since 1866



Clipper Masonry Saws eliminate "hammer and chisel" methods of firebrick and acid brick construction. Precision cuts mean longer lasting walls and arches in your Acid Chambers and Furnaces.

A Shorter Length or Special Shape Need  
Only Be As Far Away As Your Clipper Saw!  
Available on FREE TRIAL, write for literature today.

**THE CLIPPER MFG. CO., St. Louis, Mo.**  
PHILADELPHIA KANSAS CITY AUSTIN, TEX.

## Diethylorthotoluidin Ferric Chloride

## Prices

	Current Market	Low	High	Low	High
Diethylorthotoluidin, drs ..lb.	.64	.67	.64	.67	.67
Diethylphthalate, c-l, drs ..lb.	.22	.21½	.22	.19	.20
Diethylsulfate, tech, drs, wks, lcl ..lb.	.13	.14	.13	.14	.14
Diethyleneglycol, drs ..lb.	.14	.15½	.14	.15½	.15½
Mono ethyl ether, drs ..lb.	.14½	.15½	.14½	.15½	.15½
tk, wks ..lb.	.13½	.13½	.13½	.13½	.13½
Mono butyl ether, drs ..lb.	.22½	.24½	.22½	.24½	.24½
tk, wks ..lb.	.22	.22	.22	.22	.22
Diethylene oxide, 50 gal drs, wks ..lb.	.20	.24	.20	.24	.24
Diglycol Laurate, bbls ..lb.	.31	.33	.16	.33	.16
Oleate, bbls ..lb.	.17	.17	.17	.17	.17
Stearate, bbls ..lb.	.22	.22	.22	.22	.22
Dimethylamine, 400 lb drs, pure 25 & 40% sol ..lb.	.85	.90	.85	.90	1.05
Dimethylaniline, 240 lb drs lb.	.23	.24	.23	.24	.24
Dimethyl phthalate, drs, wks, frt all'd ..lb.	.20	.20	.20	.18½	.20
Dimethylsulfate, 100 lb drs lb.	.45	.50	.45	.50	.50
Dinitrobenzene, 400 lb bbls lb.	.18	.18	.18	.18	.18
Dinitrochlorobenzene, 400 lb bbls ..lb.	.14	.14	.14	.14	.14
Dinitronaphthalene, 350 lb bbls ..lb.	.35	.38	.35	.38	.38
Dinitrophenol, 350 lb bbls lb.	.22	.22	.22	.22	.22
Dinitrotoluene, 300 lb bbls lb.	.18	.18	.18	.15½	.18
Diphenyl, bbls ..lb.	.15	.15	.15	.15	.20
Diphenylamine (A) ..lb.	.25	.25	.25	.25	.25
Diphenylguanidine, 100 lb drs ..lb.	.35	.37	.35	.37	.37
Dip Oil, see Tar Acid Oil.					
Divi Divi pods, bgs shipmt ton	80.00	55.00	80.00	32.00	52.00
Extract ..lb.	.05½	.06½	.05½	.06½	.05½
Drymet (see sodium metasilicate anhydrous).					
<b>E</b>					
Egg Yolk, dom, 200 lb cases lb.	1.00	1.10	.87	1.10	.60
Epsom Salt, tech, 300 lb bbls c-l, NY ..100 lb.	1.90	2.00	1.90	2.10	1.90
USP, c-l, bbls ..100 lb.	2.10	2.10	2.10	2.10	2.10
Ether, USP anaesthesia 55 lb drs ..lb.	.60	.61	.52	.61	.53
Isopropyl 50 gal drs ..lb.	.07	.08	.07	.08	.07
tk, frt all'd ..lb.	.06	.06	.06	.06	.06
Nitrous conc bottles ..lb.	.93	.73	1.10	.73	.73
Synthetic, wks, tks ..lb.	.12½	.08	.12½	.08	.09
Ethyl Acetate, 85% Ester					
tk, frt all'd ..lb.	.11	.12	.11	.12	.06½
tk, frt all'd ..lb.	.12	.13	.12	.13	.07½
99%, tk, frt all'd ..lb.	.11½	.12½	.11½	.12½	.06½
tk, frt all'd ..lb.	.12½	.13½	.12½	.13½	.07½
Acetoacetate, 110 gal drs lb.	.37½	.37½	.37½	.37½	.37½
Benzylamine, 300 lb drs lb.	.86	.88	.86	.88	.86
Bromide, tech drs ..lb.	.50	.55	.50	.55	.50
Cellulose, drs, wks, frt all'd ..lb.	.50	.60	.50	.60	.45
Chloride, 200 lb drs ..lb.	.18	.20	.18	.20	.18
Chlorocarbonate, cbys ..lb.	.30	.30	.30	.30	.30
Crotonate, drs ..lb.	.35	.35	.35	.35	.35
Diethanolamine, lcl, dms f.o.b. Wyandotte ..lb.	.80	.80	.80	.80	.80
Ethanolamines, lcl, dms f.o.b. Wyandotte ..lb.	.60	.60	.60	.60	.60
cl. dms. f.o.b. Wyandotte lb.	.57	.57	.57	.57	.57
Formate, drs, frt all'd lb.	.27½	.27½	.27½	.25	.27½
Lactate, drs, wks ..lb.	.33½	.33½	.33½	.33½	.33½
Monoethanolamine, lcl, dms. f.o.b. Wyandotte ..lb.	.80	.80	.80	.80	.80
Oxalate, drs, wks ..lb.	.33	.33	.33	.25	.33
Silicate, drs, wks ..lb.	.77	.77	.77	.77	.77
Ethylene Dibromide, 60 lb drs ..lb.	.65	.70	.65	.70	.65
Chlorhydrin, 40%, 10 gal cbys chloro, cont ..lb.	.75	.85	.75	.85	.75
Anhydrous ..lb.	.75	.75	.75	.75	.75
Dichloride, (FP) 50 gal drs, E. Rockies ..lb.	.0742	.0742	.0742	.0693	.0746
Glycol, 50 gal drs, wks lb.	.15½	.14½	.18½	.14½	.18½
tk, wks ..lb.	.14½	.13½	.14½	.13½	.13½
Mono Butyl Ether, drs, wks ..lb.	.16½	.17½	.16½	.17½	.17½
tk, wks ..lb.	.15½	.15½	.15½	.15½	.15½
Mono Ethyl Ether, drs, wks ..lb.	.14½	.15½	.14½	.15½	.15½
tk, wks ..lb.	.13½	.13½	.13½	.13½	.13½
Mono Ethyl Ether Acetate, drs, wks ..lb.	.11½	.12½	.11½	.12½	.12½
tk, wks ..lb.	.10½	.10½	.10½	.10½	.10½
Mono Methyl Ether, drs, wks ..lb.	.15½	.16½	.15½	.16½	.16½
tk, wks ..lb.	.14½	.14½	.14½	.14½	.14½
Oxide, cyl ..lb.	.50	.55	.50	.55	.55
Ethylideneaniline ..lb.	.45	.47½	.45	.47½	.47½

Feldspar, blk pottery ..ton	17.00	19.00	17.00	19.00	17.00	19.00
Powd, blk wks ..ton	14.00	17.50	14.00	17.50	14.00	17.50
Ferric Chloride, tech, crys, 475 lb bbls ..lb.	.05	.07½	.05	.07½	.05	.07½
sol, 42° cbys ..lb.	.06½	.07	.06½	.07	.06½	.07

l + 10; m + 50; \* Bbls. are 20c higher.  
FP Full Priority. PC Price Ceiling. (A) Allocation.

# Current

# Fish Scrap Karaya

	Current Market	1942 Low High	1941 Low High
Fish Scrap, dried, unground wks (PC) ..... unit /	no prices	4.75 4.85	4.35 4.85
Acid, Bulk, 6 & 3%, delv Norfolk & Baltimore basis ..... unit /	no prices	2.75 4.50	2.75 3.25
Fluorspar, 98% bgs (PC) ton	28.00 32.00	28.00 34.00	29.00 34.00
Formaldehyde, c-l, bbls, wks (FP, PC) ..... lb.	.055 .0575	.055 .0575	... ..
Fossil Flour ..... lb.	.02% .04	.02% .04	.02% .04%
Fullers Earth, blk, mines ton	8.50 15.00	8.50 15.00	8.50 15.00
Imp powd, c-l, bgs ..... ton	30.00 40.00	30.00 40.00	no prices
Furfural (tech) drs, wks lb.	.15 .20	.15 .20	.10 .15
tk, wks ..... lb.	... .09	... .09	... .09
Furfuramide (tech) 100 lb drs ..... lb.	... .30	... .30	... .30
Fusel Oil, 10% impurities lb.	.18% .19%	.18 .19%	.16 .19%
Fustic, crystals, 100 lb boxes ..... lb.	.28 .32	.28 .32	.24 .32
Liquid 50°, 600 lb bbls lb.	.12% .16	.12% .16	.10% .16
Solid, 50 lb boxes ..... lb.	.19 .21	.19 .21	.19 .21

## G

G Salt paste, 360 lb bbls lb.	... .45	... .45	... .45
Gambier, com 200 lb bgs lb.	no prices	... .09%	.06% .09%
Singapore cubes, 150 lb bgs ..... 100 lb.	.30 nom.	.12% .30	.08% .11
Glauber's Salt, tech, c-l, bgs, wks ..... 100 lb.	1.05 1.25	1.05 1.28	.95 1.28
Anhydrous, see Sodium Sulfate			
Glue, bone, com grades, c-l bgs ..... lb.	.15% .18%	.15% .18%	.13% .18%
Better grades, c-l, bgs lb.	.19 .30	.19 .30	.15 .30
Glycerin (PC) CP, drs ..... lb.	... .18%	... .18%	.14% .19%
Dynamite, 100 lb drs ..... lb.	... .18%	... .18%	... .18%
Saponification, drs ..... lb.	... .12%	... .12%	.09% .20%
Soap Lye, drs ..... lb.	... .11%	... .11%	.07% .18
Glyceryl Bori-Borate, bbls lb.	... .40	... .40	... .40
Monoricinoleate, bbls ..... lb.	... .27	... .27	... .27
Monostearate, bbls ..... lb.	... .30	... .30	... .30
Oleate, bbls ..... lb.	... .22	... .22	... .22
Phthalate ..... lb.	... .38	... .38	... .38
Glyceryl Stearate, bbls ..... lb.	... .18	... .18	... .18
Glycol Bori-Borate, bbls ..... lb.	... .22	... .22	... .22
Phthalate, drs ..... lb.	... .38	... .38	... .38
Stearate, drs ..... lb.	... .26	... .26	... .26

## GUMS

Gum Aloes, Barbadoes ..... lb.	.80 .85	.80 .85	.80 .95
Arabic, amber sorts ..... lb.	.14% .15	.14% .15	.14 .25
White sorts, No. 1, bgs lb.	.35 .35	.35 .35	.35 .45
Powd, bbls ..... lb.	.20 .21	.20 .28	.18 .30
Asphaltum, Barbadoes (Manjak) 200 lb bgs, f.o.b. NY ..... lb.	.05% .12	.04% .12	.04% .05%
California, f.o.b. NY, drs ton	35.00 40.00	30.00 40.00	20.00 36.50
Egyptian, 200 lb cases, f.o.b. NY ..... lb.	.12 .15	.12 .15	.12 .15
Benzoin Sumatra, USP, 120 lb cases ..... lb.	.50 .55	.45 .55	.19 .50
Copal, Congo, 112 lb bgs, clean, opaque ..... lb.	... .49%	... .49%	... .49%
Dark amber ..... lb.	... .12%	... .12%	... .12%
Light amber ..... lb.	... .17	... .17	... .17
Copal, East India, 180 lb bgs Macassar pale bold ..... lb.	... .17%	... .17%	.12% .17%
Chips ..... lb.	... .11%	... .11%	.06% .11%
Dust ..... lb.	... .07	... .07	.05% .07
Nubs ..... lb.	... .13%	... .13%	.10% .13%
Singapore, Bold ..... lb.	... .22%	... .22%	.15% .22%
Chips ..... lb.	... .12%	... .12%	.08% .12%
Dust ..... lb.	... .07	... .07	.05% .07
Nubs ..... lb.	... .17%	... .17%	.11 .17%
Copal Manila, 180-190 lb (A) Loba B ..... lb.	... .14% .13%	... .14% .13%	.13% .14%
Loba C ..... lb.	... .13% .13%	... .13% .13%	.11% .13%
DBB ..... lb.	... .11	... .12%	.10 .12%
MA sorts ..... lb.	... .09%	... .09%	.10% .10%
Copal Pontianak, 224 lb cases, bold gen. (A) lb.	... .22%	... .22%	.15% .22%
Chips ..... lb.	... .12%	... .12%	.10 .14%
Mixed ..... lb.	... .17%	... .17%	.14% .17%
Nubs ..... lb.	... .18%	... .18%	.12% .18%
Split ..... lb.	... .19%	... .19%	.13% .19%
Damar Batavia, 136 lb cases (A) A ..... lb.	... .35%	... .35%	.21% .35%
B ..... lb.	... .34%	... .34%	.20% .34%
C ..... lb.	... .28%	... .28%	.14% .28%
D ..... lb.	... .25%	... .25%	.13% .25%
A/D ..... lb.	... .28%	... .28%	.15% .28%
A/E ..... lb.	... .25%	... .25%	.12% .25%
E ..... lb.	... .18%	... .18%	.10 .18%
F ..... lb.	... .13%	... .13%	.08 .13%
Singapore, No. 1 ..... lb.	... .30%	... .30%	.16% .30%
No. 2 ..... lb.	... .25%	... .25%	.12% .25%
No. 3 ..... lb.	... .12%	... .12%	.07% .12%
Chips ..... lb.	... .23%	... .23%	.11 .23%
Dust ..... lb.	... .13	... .13	.07% .13
Seeds ..... lb.	... .17%	... .17%	.09% .17%
Elemi, cns, c-l (A) ..... lb.	... .08%	... .08%	.08% .08%
Ester ..... lb.	... .10	... .10	.06% .09%
Gamboge, pipe, cases ..... lb.	2.30 2.35	.95 2.35	.95 1.00
Powd, bbls ..... lb.	2.50 2.55	1.05 2.55	1.05 1.10
Ghatti, sol, bgs ..... lb.	.11 .15	.11 .15	.11 .15
Karaya, bbls, bxs, drs ..... lb.	.14 .33	.14 .33	.14 .33

FP Full Priority. PC Price Ceiling. (A) Allocation.



## Phenols

## Cresols

## Cresylic Acids

## Chlorinated Tar Acids

## Barretan\*

## Pickling Inhibitors

## Benzol

## Toluol

## Naphthalene

## Phthalic Anhydride

## Butyl Phthalate

## Pyridines

## Tar Acid Oils

## Creosote Oil

## Cumar\*

(Paracoumarone-Indene Resin)

## Rubber Compounding Materials

## Bardol\*

## Xylol

## Solvent Naphtha

## Hi-Flash Solvent

## Hydrogenated Coal-tar Chemicals

## Flotation Agents

## Anhydrous Ammonia

## Sulphate of Ammonia

## Arcadian,\* the American Nitrate of Soda

## THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK




Send for NEW  
REVISED BOOKLET:



This new 36-page, pocket-sized booklet lists the many important Barrett Chemicals and provides a finger-tip reference which gives concise descriptions and uses of each product. We will gladly send you a copy on request. No obligation.

\*Reg. U. S. Pat. Off.



**Borax**  
**BORIC ACID**

Guaranteed 99½ to 100% Pure

**20**

Borax Glass - Anhydrous Boric Acid  
Manganese Borate - Ammonium Borate  
Sodium Meta Borate - Potassium Borate

**Pacific Coast Borax Co.**

51 Madison Avenue, New York  
Chicago Los Angeles

Oldbury  
Electro-Chemical  
Company

SODIUM CHLORATE  
•  
POTASSIUM CHLORATE  
•  
POTASSIUM PERCHLORATE

THE sale and distribution of the chemicals listed above are covered by General Preference Order M-171. Our New York Office will be pleased to advise customers regarding the Preference Order, and furnish the necessary forms.

Plant and Main Office:  
Niagara Falls, New York  
New York Office: 22 E. 40th St., New York City

**Kauri, NY  
Logwood**

**Prices**

	Current Market	1942		1941	
		Low	High	Low	High
<b>Kauri, N Y (A)</b>					
Brown XXX, cases . . . lb.	.77	.60	.77	. . .	.60
BX . . . . . lb.	.38	. . .	.38	. . .	.38
B1 . . . . . lb.	.34	.28	.34	. . .	.28
B2 . . . . . lb.	.30	.24	.30	. . .	.24
B3 . . . . . lb.	.27½	.18½	.27½	. . .	.18½
Pale XXX . . . . . lb.	.66	.61	.66	. . .	.61
No. 1 . . . . . lb.	.43	.41	.43	. . .	.41
No. 2 . . . . . lb.	.31	.24	.31	. . .	.24
No. 3 . . . . . lb.	.22	.17½	.22	. . .	.17½
Kino, tins . . . . . lb.	no prices	no prices	no prices	no prices	no prices
Mastic . . . . . lb.	3.50	3.75	3.25	3.75	1.50 3.30
Sandarac, prime quality, 200 lb bgs & 300 lb cks . . . lb.	.95	1.10	.95	1.10	.50 1.10
Senegal, picked bgs . . . lb.	.30	. . .	.30	. . .	.30
Sorts . . . . . lb.	.13	. . .	.13	. . .	.13
Thus, bbls . . . . . 280 lbs.	16.50	. . .	16.50	15.00	16.50
Tragacanth, No. 1, cases lb.	3.75	3.80	3.50	4.00	2.75 3.40
No. 2 . . . . . lb.	3.40	3.45	2.00	3.45	2.45 2.80
No. 3 . . . . . lb.	1.10	1.20	1.10	1.20	1.10 2.60
Yacca, bgs (PC) . . . . . lb.	.06	.07½	.06	.07½	.03½ .07½
<b>H</b>					
Hematin crys, 400 lb bbls lb.	.24	.34	.24	.34	.20 .34
Hemlock, 25%, 600 lb bbls wks . . . . . lb.	. . .	.0385	.03½	.0385	.03½ .03½
tk . . . . . lb.	. . .	.0325	.03	.0325	.02½ .03
Hexalene, 50 gal drs, wks lb.	.23	. . .	.23	.23	.30
Hexane, normal 60-70° C. Group 3, tks (PC) . . gal.	. . .	.11	. . .	.11	.09½ .11
Hexamethylenetetramine, powd, drs (FP) . . . lb.	.32	.33	.32	.33	.32 .33
Hexyl Acetate, secondary, delv, drs . . . . . lb.	.13	.13½	.13	.13½	.13 .13½
Hoof Meal, f.o.b. Chicago unit tks . . . . . lb.	4.35	4.50	3.00	4.50	2.65 3.05
Hydrogen Peroxide, 100 vol. 140 lb cbsys . . . . . lb.	.16	.12	. . .	.12	. . . .12
Hydroxylamine Hydrochloride . . . . . lb.	. . .	3.15	. . .	3.15	. . . 3.15
Hypernic, Bags, No. 1 . . lb.	. . .	.42	. . .	.42	.40 .42
<b>I</b>					
Indigo, Bengal, bbls . . . lb.	2.14	2.20	2.14	2.20	1.63 2.20
Synthetic, liquid . . . lb.	.16½	.19	.16½	.19	.16½ .19
Iodine, Resublimed, jars . lb.	. . .	2.00	. . .	2.00	. . . 2.00
Irish Moss, ord, bales . . lb.	.26	.28	.26	.42½	.25 .31
Bleached, prime, bales lb.	.38	.50	.38	.85	.32 .46
Iron Acetate Liq, 17°, bbls delv . . . . . lb.	.03	.04	.03	.04	.03 .04
Chloride see Ferric Chloride Nitrate, coml, bbls 100 lb.	3.50	4.00	3.50	4.00	3.50 4.00
Isobutyl Carbinol (128-132°C) drs, f.o.b. Wyandotte, Mich . . . . . lb.	. . .	.23½	. . .	.23½	.22½ .23½
tk . . . . . lb.	. . .	.21½	. . .	.21½	. . . .21½
Isopropyl Acetate, tks, frt . . . lb.	. . .	.10	.076	.10	.06½ .07½
dr, frt all'd, c-l . . . lb.	. . .	.12	.086	.12	.07½ .08½
Ether, see Ether, isopropyl	. . .	. . .	. . .	. . .	. . .
<b>K</b>					
Keiselguhr, dom bags, c-l, Pacific Coast . . . . . ton	22.00	25.00	22.00	25.00	22.00 25.00
<b>L</b>					
<b>Lead Acetate, f.o.b. NY, bbls, (PC)</b>					
White, broken . . . . . lb.	. . .	.12½	.12	.13½	.11 .12½
cryst, bbls . . . . . lb.	. . .	.12½	.12	.13½	.11 .12½
gran, bbls . . . . . lb.	. . .	.13½	.12½	.14	.11½ .13½
powd, bbls . . . . . lb.	. . .	.13½	.12½	.14	.11½ .13½
Arsenate, East, drs . . . lb.	.11	.12	.11	.12	.09 .11
Linoleate, solid, bbls lb.	. . .	.22½	.19	.22½	. . . .19
Metal, c-l, NY (FP) 100 lb.	5.85	5.90	5.85	5.90	5.70 5.90
Nitrate, 500 lb bbls, wks lb.	.11	.14	.11	.14	.11 .14
Oleate, bbls . . . . . lb.	. . .	.17½	.17½	.20	.18½ .20
Red, dry, 95% PbO <sub>2</sub> . . . lb.	. . .	.10½	.09	.10½	.08 .08½
delv . . . . . lb.	. . .	.09½	.09½	.09½	.084 .086
98% PbO <sub>2</sub> , delv . . . lb.	. . .	.10½	.09½	.10½	.0865 .0885
Resinate, fused, bbls . lb.	.10	.12	.09½	.12	.09½ .16½
Stearate, bbls . . . . . lb.	. . .	.25	. . .	.25	. . . .25
Titanate, bbls, c-l, f.o.b. wks, frt, all'd . . . lb.	. . .	.10½	. . .	.10½	. . . .10½
White, 500 lb bbls, wks, lb.	. . .	.07½	. . .	.07½	. . . .07½
Basic sulfate, 500 lb bbls, wks . . . . . lb.	. . .	.07½	.06½	.07½	.06½ .07
Lecithin, ed, drs, cl . . . lb.	. . .	.28½	.28½	.34	. . . . .
tech, drs, cl . . . . . lb.	. . .	.26	.26	.28	. . . . .
<b>Lime, chemical quicklime, f.o.b. wks, bulk . . . ton</b>					
Hydrated, f.o.b. wks . . ton	7.00	13.00	7.00	13.00	7.00 13.00
Lime Salts, see Calcium Salts	8.50	16.00	8.50	16.00	8.50 16.00
Lime, sulfur, dealers, tks gal. drs . . . . . gal.	no prices	.07½	.08½	. . .	.07½
Linseed Meal, bgs . . . . ton	no prices	.10	.14	.10	.14
Litharge, coml, delv, bbls lb.	. . .	.08	.079	.08	.07 .0760
Lithopone, dom, ordinary, (PC), delv, bgs . . . lb.	. . .	.04½	. . .	.04½	.0385 .04½
bbls . . . . . lb.	. . .	.04½	. . .	.04½	.041 .04½
Titanated, bgs . . . . . lb.	. . .	.056	. . .	.056	.05½ .056
bbls . . . . . lb.	. . .	.0585	. . .	.0585	.05½ .0585
Logwood, 51°, 600 lb bbls lb.	. . .	.14	.13	.14	.10½ .13
Solid, 50 lb boxes . . . lb.	. . .	.23½	.22	.23½	.16½ .22

FP Full Priority. PC Price Ceiling. (A) Allocation.

# Current

# Madder Morpholine

	Current Market	1942 Low High	1941 Low High
<b>M</b>			
Madder, Dutch .....	.24	.30	.22 .30 .22 .25
Magnesite, calc, 500 lb bbls ton	84.00	90.00	74.00 90.00 65.00 80.00
Magnesium Carb, tech, 70			
lb bgs, wks .....	.06 1/4	.06 1/4	.06 1/4
Chloride flake, 375 lb bbls,			
c-l, wks .....	32.00	32.00	32.00
Metal, Ingots, c-l .....	.27	.27	
Oxide, calc tech, heavy			
bbls, frt all'd .....	.26	.26	.26
Light bbls above basis lb.	.26	.26	.26
USP Heavy, bbls, above			
basis .....	.26	.26	.26
Palmitate, bbls .....	.33	.33	.33
Silicofluoride, bbls .....	.18	.20	.18 .25 .11 .25
Stearate, bbls .....	.31	.32	.31 .33 .23 .31
Manganese, acetate, drs .....	.26 1/2	.26 1/2	.26 1/2
Borate, 30%, 200 lb bbls lb.	.15	.17	.15 .16
Chloride, bbls .....	.14	nom.	.13 .14 .14
Dioxide, tech (peroxide),			
paper bags, c-l .....	74.75	70.00	74.75 .71.50
Hydrate, bbls .....	.82	.82	.82
Linolate, liq, drs .....	.20	.18	.20 .18 .19 1/2
solid, precip, bbls .....	.22	.19	.22 .19
Resinate, fused bbls .....	.09	.10 1/2	.08 1/4 .10 1/4 .08 1/4 .08 1/2
precip, drs .....	.14 1/2	.15 1/2	.15 1/2 .12
Sulfate, tech, anhyd, 90-			
95%, 550 lb drs .....	.11 1/2	.10 1/2	.11 1/4 .10 1/2 .11 1/2
Mangrove, 55%, 400 lb bbls lb.			
Bark, African .....	60.00	no prices	34.00 38.00
Mannitol, pure cryst, cs, wks lb.	.85	.85	.85 .90
commercial grd, 250 lb			
bbls .....	.40	.40	.35 .45
Marble Flour, blk .....	12.50	14.50	12.50 14.50 12.00 14.50
Mercury chloride (Calomel) lb.	.295	.295	2.70 2.95
Mercury metal .76 lb. flasks	193.00	191.00	210.00 167.00 215.00
Mesityl Oxide, f.o.b. dest,			
tk .....	.10 1/2	.10 1/2	.10 1/2 .15
drs, c-l .....	.12 1/2	.11 1/2	.12 1/2 .16
drs, lcl .....	.13	.13	.13 .16 1/2
Meta-nitro-aniline .....	.67	.69	.67 .69
Meta-nitro-paratoluidine 200			
lb bbls .....	1.05	1.10	1.05 1.10 1.05 1.10
Meta-phenylene diamine 300			
lb bbls .....	.65	.65	.65
Meta-toluene-diamine 300 lb			
bbls .....	.70	.70	.65 .70
Methanol, denat, grd, drs,			
c-l, frt all'd (PC) .....	.66	.66	.60 .66
tk, frt all'd .....	.60	.60	.60 .60
Pure, nat, drs, c-l, frt			
all'd .....	.55 1/2	.61 1/2	.55 1/2 .61 1/2 .55 1/2 .55 1/2
tk, nat .....	.50	.54 1/2	.50 .54 1/2 .30 .50
Synth, pure, drs .....	.34 1/2	.40 1/2	.34 1/2 .40 1/2
tk, synth .....	.28	.32 1/2	.28 .32 1/2
Methyl Acetate, tech tks,			
delv .....	.06	.07	.06 .07 .06 .07
55 gal drs, delv .....	.11	.12 1/2	.11 .12 1/2 .07 .12 1/2
C.P. 97-99%, tks, delv lb.	.09 1/2	.10 1/2	.09 1/2 .10 1/2 .09 1/2 .10 1/2
55 gal drs, delv .....	.10 1/2	.13	.10 1/2 .13 .10 1/2 .13
Acetone, frt all'd, drs gal. p			
tk, frt all'd .....	.81	.81	.81 .37 1/2 .81
Synthetic, frt, all'd,			
drs .....	.75	.75	.75 .32 .75
tk, frt all'd .....	.51	.54 1/2	.51 .54 1/2 .37 1/2 .51
tk, frt all'd .....	.43	.45 1/2	.43 .45 1/2 .32 .43
Anthraquinone .....	.83	.83	.83
Butyl Ketone, tks .....	.10 1/2	.10 1/2	.10 1/2
Cellulose, 100 lb lots,			
frt all'd .....	.50	.55	.50 .55 .55
less than 100 lbs f.o.b.			
wks .....	.60	.60	.60 .60
Chloride, 90 lb cyl .....	.32	.40	.32 .40 .32 .40
Ethyl Ketone, tks, frt all'd lb.			
50 gal drs, frt all'd, c-l lb.	.09 1/2	.09 1/2	.07 .09 1/2
Formate, drs, frt all'd .....	.89	.89	.89 .89
Hexyl, Ketone, pure, drs lb.	.60	.60	.60 .60
Lactate, drs, frt all'd .....	.70	.70	.70 .80
Mica, dry grd, bgs, wks .....	30.00	30.00	30.00
Michler's Ketone, kgs .....	2.50	2.50	2.50
Mixed Amylnaphthalenes			
mixed, ref, l-c-l, drs, f.o.b.			
wks .....	.16	.16	.16 .19
crude .....	.14	.14	.14 .15
Monoamylamine, cl, drs, wks lb.	.61	.50	.61 .50 .52
lcl, drs, wks on (100%			
basis) .....	.64	.64	.55
Monoamylamine, lcl,			
drs, f.o.b. wks .....	.17	.17	.17 .20
Monobutylamine, drs			
(100% basis) .....	.48	.40	.48 .40
c-l, wks .....	.51	.51	.64 .48
l-c-l, wks .....			
Monochlorobenzene, see "C"			
Monoethanolamine, tks, wks lb.	.23	.23	.23
Monoethylamine (100% basis)			
lcl, drs, f.o.b. wks .....	.46	.46	.35 .65
Monomethylamine, drs, frt			
all'd, E. Mississippi, c-l lb.	.65	.65	.65
Monomethylparaffin sulfate,			
100 lb drs .....	3.75	4.00	3.75 4.00 3.75 4.00
Morpholine, drs 55 gal,			
wks .....	.67	.67	.67

a Producers of natural methanol divided into two groups and prices vary for these two divisions; b Country is divided into 4 zones, prices varying by zone; p Country is divided into 4 zones.

(FP) Full Priority. (PC) Price Control.

# PENACOL

## RESORCIN

TECHNICAL

U. S. P.

## CATECHOL

C. P. CRYSTALS

RESUBLIMED

Samples and Prices upon request

## PENNSYLVANIA COAL PRODUCTS COMPANY

PETROLIA • PENNSYLVANIA

Cable: PENACOL

Phone: Bruin, Pa., 2641

MARINCO

BRAND

Original Producers of  
**MAGNESIUM SALTS**  
from SEA WATER

**MARINE**  
**MAGNESIUM**  
PRODUCTS CORPORATION

A dependable source of supply for  
**MAGNESIUM CARBONATES**  
**HYDROXIDES OXIDES**

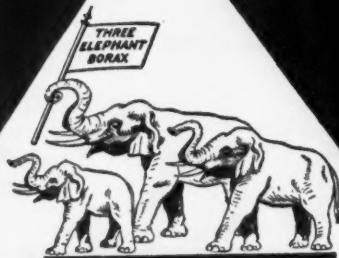
(U.S.P. technical and special grades)

Main Office, Plant and Laboratories

**SOUTH SAN FRANCISCO, CALIFORNIA**

NEW YORK OFFICE: CHICAGO OFFICE: ST. LOUIS OFFICE:  
Whittaker, Clark & Daniels, Harry Holland & Son, G. S. Robins &  
Inc. Inc. Company  
260 West Broadway 400 W. Madison St. 126 Chouteau Ave.

# Specify



## THREE ELEPHANT BORAX-BORIC ACID



## MURIATE OF POTASH

Stocks carried in principal cities of United States  
and Canada

**AMERICAN POTASH & CHEMICAL CORP.**  
70 PINE STREET NEW YORK

# NEED

# Chemicals?

**SERVING  
THE INDUSTRIES  
with FINE and HEAVY  
CHEMICALS**

**Since 1900**

**Pfaltz & Bauer, Inc.**  
EMPIRE STATE BUILDING, NEW YORK

## Myrobalans Para Toluidine

## Prices

	Current Market	1942 Low High	1941 Low High
Myrobalans 25%, liq bbls lb.	no prices	no prices	no prices
50% Solid, 50 lb boxes lb.	no prices	no prices	no prices
J2 bgs f.a.s. ....ton	65.00	no prices	35.00 48.00
J1 bgs f.a.s. ....ton	60.00	no prices	28.00 39.00

### N

Naphtha, vm&p, (deodorized) see petroleum solvents.					
Naphtha, Solvent, water- white, tks ....gal.	.27	.27	.27	.26	
drs, c-l ....gal.	.31	.31	.31	.31	
Naphthalene, dom, crude bgs. wks ....lb.	2.75	3.00	2.50	3.00	2.25 2.75
Balls, flakes, pks ....lb.	.08	.08	.08	.06 1/4	.08
Balls, ref'd, bbls, wks ....lb.	.08	.08	.08	.07	.08
Flakes, ref'd, bbls, wks ....lb.	.08	.08	.08	.07	.08
Nickel Carbonate, bbls (A) lb.	.36	.36 1/4	.36	.36 1/4	.36 1/4
Chloride, bbls ....lb.	.18	.20	.18	.20	.18
Metal ingot ....lb.	.35	.36	.35	.36	.34
Oxide, 100 lb kgs, NY lb.	.35	.38	.35	.38	.35
Salt, 400 lb bbls, NY ....lb.	.13	.13 1/4	.13	.13 1/4	.13
Nicotine, sulfate, 40%, drs. 55 lb drs ....lb.	.703	.703	.703	.703	.703
Nitre Cake, blk ....ton	16.00	16.00	16.00	16.00	
Nitrobenzene redistilled, 1000 lb drs, wks ....lb.	.08	.09	.08	.09	.08 .09
tk. ....lb.	.07	.07	.07	.07	.07
Nitrocellulose, c-l, lcl, wks lb.	.20	.29	.20	.29	.20 .29
Nitrogen Sol 45 1/2% ammon, f.o.b. Atlantic & Gulf ports, tk, unit ton, N basis	1.2158	1.2158	1.2158	1.2158	
Nitrogenous Mat'l, bgs imp unit dom, Eastern wks ....unit	3.00	2.75	3.50	2.20	3.00
dom, Western wks ....unit	2.90	2.60	3.35	1.75	2.60
Nitronaphthalene, 550 lb bbls lb.	.24	.25	.24	.25	.24 .25
Nutgalls Aleppo, bgs ....lb.	no prices	no prices	.26	.29	

### O

Oak Bark Extract, 25%, bbls lb.	.0385	.03 1/4	.03 1/4	.03 1/4	.03 1/4
tk. ....lb.	.0325	.02	.0325	.02 1/4	.03
Octyl Acetate, tks, wks ....lb.	.15	.15	.15	.15	.15
Orange-Mineral, 1100 lb cks NY ....lb.	.12	.12	.12	.11	.11 1/4
Orthoaminophenol, 50 lb kgs lb.	2.15	2.25	2.15	2.25	2.15
Ortho amyl phenol, l-c-l, drs, f.o.b. wks ....lb.	.25	.25	.25	.15	.25
Orthoanisidine, 100 lb drs lb.	.70	.70	.70	.70	.70
Orthochlorophenol, drs ....lb.	.32	.32	.32	.32	.32
Orthocresol, 30.4°, drs, wks (A) ....lb.	.17 1/4	.18	.17	.18	.16 .17 1/4
Orthodichlorobenzene, 1000 lb drs ....lb.	.06	.07 1/4	.06	.07 1/4	.06 .07 1/4
Orthonitrochlorobenzene, 1200 lb drs, wks ....lb.	.15	.16	.15	.18	.15 .18
Orthonitroparachlorophenol, tins ....lb.	.75	.75	.75	.75	.75
Orthonitrophenol, 350 lb drs ....lb.	.85	.90	.85	.90	.85 .90
Orthonitrotoluene, 1000 lb drs, wks ....lb.	.09	.09	.09	.09	.09
Orthotoluidine, 350 lb bbls, lcl ....lb.	.19	.19	.19	.19	.19
Osage Orange, cryst, bbls lb.	.23	.23	.23	.21	.23
51° liquid ....lb.	.10	.10	.10	.10	.10

### P

Paraffin, rfd, 200 lb bgs (PC)					
122-127° M P ....lb.	.052	.052	.052	.04 1/4	.057
128-132° M P ....lb.	.056	.0585	.056	.0585	.057 .0595
133-137° M P ....lb.	.0615	.0640	.0615	.0640	.06 1/4 .06 1/2
Para aldehyde, 99%, tech, 55-110 gal drs, wks ....lb.	.12	.12	.12	.10	.12
Aminoacetanilid, 100 lb kgs ....lb.	.85	.85	.85	.85	.85
Aminohydrochloride, 100 lb kgs ....lb.	1.25	1.30	1.25	1.30	1.25 1.30
Aminophenol, 100 lb kgs lb.	1.05	1.05	1.05	1.05	1.05
Chlorophenol, drs ....lb.	.32	.32	.32	.32	.32
Dichlorobenzene 200 lb drs, wks ....lb.	.11	.12	.11	.12	.11 .12
Formaldehyde, drs, wks (FP) ....lb.	.23	.24	.23	.24	.23 .24
Nitroacetanilid, 300 lb bbls ....lb.	.45	.52	.45	.52	.45 .52
Nitroaniline, 300 lb bbls, wks ....lb.	.45	.45	.45	.45	.45
Nitrochlorobenzene, 1200 lb drs, wks ....lb.	.15	.15	.15	.15	.15
Nitro-orthotoluidine, 300 lb bbls ....lb.	2.75	2.85	2.75	2.85	2.75 2.85
Nitrophenol, 185 lb bbls lb.	.35	.35	.35	.35	.35
Nitrosodimethylaniline, 120 lb bbls ....lb.	.92	.94	.92	.94	.92 .94
Nitrotoluene, 350 lb bbls lb.	.30	.30	.30	.30	.30
Pentaerythritol, tech, bbls delv ....lb.	.33 1/4	.35 1/4	.33 1/4	.35 1/4	.33 1/4 .35 1/4
Phenylenediamine, 350 lb bbls ....lb.	1.25	1.30	1.25	1.30	1.25 1.30
Toluenesulfonamide, 175 lb bbls ....lb.	.70	.70	.70	.70	.70
tk, wks ....lb.	.31	.31	.31	.31	.31
Toluenesulfonchloride, 410 lb bbls, wks ....lb.	.20	.22	.20	.22	.20 .22
Toluidine, 350 lb bbls, wks ....lb.	.48	.48	.48	.48	.48

(FP) Full Priority. (PC) Price Control (A) Allocation.

# Current

## Paris Green Potassium Perchlorate

	Current Market	1942 Low High	1941 Low High
Paris Green, dealers, drs. lb.	.24 .26	.24 .26	.23 .25
Pentane, normal, 28-38° C.			
group, 3 tks (PC) .gal.	.06½ .06½	.08½ .08½	.08½ .08½
drs, group 3 .gal.	.11 .11½	.16 .11½	.16 .16
Perchlorethylene, 10 lb drs.			
frt all'd (FP) .lb.	.08 .08½	.08 .08½	.08 .08½
Petrolatum, dark amber,			
bbls .lb.	.03¼ .03¼	.02¼ .02¼	.03¼ .03¼
White, lily, bbls .lb.	.05¼ .05¼	.05¼ .04¼	.05¼ .05¼
White, snow, bbls .lb.	.06½ .06½	.06½ .05½	.06½ .06½
Petroleum Ether, 30-60°.			
Group 3, tks .gal.	.16 .16	.16 .13½	.16 .16
drs, group 3 .gal.	.18 .18	.18 .14½	.18 .18

## PETROLEUM SOLVENTS AND DILUENTS

Cleaners naphthas, group					
3, tks, wks .gal.	.07½ .07½	.07½ .07	.07½ .07½	.07 .07½	.07½ .07½
East Coast, tks, wks gal.	.11 .10½	.11 .10	.11 .10	.10 .10½	.10½ .10½
Lacquer diluents, tks,					
East Coast .gal.	.11 .11	.11 .09½	.11 .11	.09½ .11	.11 .11
group 3, tks .gal.	.07½ .07½	.08½ .08½	.08½ .08½	.08½ .08½	.08½ .08½
Naphtha, V.M.P., East					
tks, wks .gal.	.11 .10½	.11 .09	.11 .11	.09 .11	.11 .11
Group 3, tks, wks .gal.	.07½ .07½	.07½ .06	.07½ .07½	.06 .07½	.07½ .07½
Petroleum thinner, 43-47,					
East, tks, wks .gal.	.08¼ .09½	.08¼ .09½	.08¼ .08¼	.09½ .09½	.09½ .09½
Group 3, tks, wks .gal.	.06 .07	.06 .07	.06 .07	.07 .07	.07 .07
Rubber Solvents, stand					
grd, East, tks, wks .gal.	.11 .10½	.11 .09½	.11 .10½	.09½ .10½	.10½ .10½
Group 3, tks, wks .gal.	.07½ .07½	.07½ .06	.07½ .07½	.06 .07½	.07½ .07½
Stoddard Solvents, East,					
tks, wks .gal.	.09½ .09½	.09½ .083	.09½ .09½	.083 .09½	.09½ .09½
Group 3, wks .gal.	.06½ .06½	.06½ .05½	.06½ .06½	.05½ .06½	.06½ .06½
Phenol, 250-100 lb drs .lb.	.12½ .12½	.13 .12	.12 .12	.12 .13½	.13½ .13½
tks, wks (FP) (A) .lb.	.11½ .11½	.12 .11	.11 .11	.11 .12	.12 .12
Phenyl-Alpha-Naphthylamine,					
100 lb kgs .lb.	1.35 .17	1.35 .17	1.35 .17	1.35 .17	1.35 .17
Phenyl Chloride, drs .lb.	.17 .17	.17 .17	.17 .17	.17 .17	.17 .17
Phenylhydrazine Hydro-					
chloride, com .lb.	1.75 .17	1.75 .17	1.75 .17	1.50 .17	1.50 .17
Phloroglucinol, tech, tins lb.	15.00 16.50	15.00 16.50	15.00 16.50	15.00 16.50	16.50 16.50
CP, tons .lb.	20.00 22.00	20.00 22.00	20.00 22.00	20.00 22.00	22.00 22.00
Phosphate Rock, f.o.b. mines					
70% basis .ton	2.70 2.40	2.70 2.15	2.40 2.15	2.15 2.40	2.40 2.40
72% basis .ton	3.20 3.00	3.20 2.50	3.00 2.50	2.50 3.00	3.00 3.00
Florida Pebble, 68% basiston	2.00 2.00	2.20 1.90	2.00 1.90	1.90 2.00	2.00 2.00
75-74% basis .ton	4.00 4.00	4.00 2.90	4.00 2.90	2.90 4.00	4.00 4.00
Tennessee, 72% basis ton	5.30 5.00	5.50 4.50	5.00 4.50	4.50 5.00	5.00 5.00
Phosphorus Oxychloride 175					
lb cyl (FP) .lb.	.15 .18	.15 .18	.15 .15	.18 .18	.18 .18
Red, 110 lb cases .lb.	.40 .44	.40 .44	.40 .44	.44 .44	.44 .44
Sesquisulfide, 100 lb cs .lb.	.38 .42	.38 .42	.38 .38	.42 .42	.42 .42
Trichloride, cyl .lb.	.15 .16	.15 .16	.15 .15	.16 .16	.16 .16
Yellow, 110 lb cs, wks lb.	.18 .20	.18 .20	.18 .18	.20 .20	.20 .20
Phthalic Anhydride, 100 lb					
drs, wks (A) .lb.	.14½ .15½	.14½ .15½	.14½ .14½	.15½ .15½	.15½ .15½
Pine Oil, 55 gal drs or bbls					
Destructive dist .lb.	.72 .74	.72 .50	.74 .50	.50 .65	.65 .65
Steam dist wat wh bbls gal.	1.00 nom	1.00 1.10	1.10 .59	.59 .68	.68 .68
Pitch Hardwood, wks .ton	23.75 24.00	23.75 24.00	23.75 24.00	24.00 24.00	24.00 24.00
Coal tar, bbls, wks .ton	19.00 22.00	19.00 22.00	19.00 22.00	22.00 22.00	22.00 22.00
Burgundy, dom, bbls, wks .lb.	.06 .06½	.06 .06½	.06 .06	.06 .06½	.06½ .06½
Imported .lb.	no prices	no prices	no prices	no prices	no prices
Petroleum, see Asphaltum					
in Gums' Section.					
Pine, bbls .bbl.	6.00 6.00	7.00 6.00	6.00 6.00	6.00 7.00	7.00 7.00
Polyaminonaphthalene, 1-c1,					
drs, f.o.b. wks .lb.	.25 .25	.25 .25	.25 .25	.30 .30	.30 .30
Potash, Caustic, wks, sol lb.	.06½ .06½	.06½ .06½	.06½ .06½	.06½ .06½	.06½ .06½
flake .lb.	.07 .07	.07 .07	.07 .07	.07 .07	.07 .07
liquid, tks .lb.	.02½ .02½	.02½ .02½	.02½ .02½	.02½ .02½	.02½ .02½
Manure Salts, Dom					
30% basis, blk .unit	.60 .60	.60 .60	.60 .60	.60 .60	.60 .60

## POTASSIUM

Potassium Abietate, bbls .lb.	.08 .08	.08 .08	.08 .08	.08 .08	.08 .08
Acetate, tech, bbls, delv lb.	.28 .28	.28 .28	.28 .28	.28 .28	.28 .28
Bicarbonate, USP, 320 lb					
bbls .lb.	.19 .21	.14 .21	.14 .14	.14 .17	.17 .17
Bichromate Crystals, 725					
lb cks (FP) .lb.	.09½ .09½	.09½ .08½	.08½ .09½	.09½ .09½	.09½ .09½
Binoxalate, 30 lb bbls .lb.	.23 .23	.23 .23	.23 .23	.23 .23	.23 .23
Bisulfate, 100 lb kgs .lb.	.15½ .18	.15½ .18	.15½ .18	.18 .18	.18 .18
Carbonate, 80-85% calc 800					
lb cks .lb.	.06½ .06½	.06½ .06½	.06½ .06½	.06½ .06½	.06½ .06½
liquid, tks .lb.	.0275 .0275	.0275 .0275	.0275 .0275	.0275 .0275	.0275 .0275
drs, wks .lb.	.03 .03½	.03 .03½	.03 .03	.03 .03½	.03½ .03½
Chlorate crys, 112 lb kgs,					
wks (FP) (A) .lb.	nom. .11	nom. .11	.11 .11	.11 .11	.11 .11
gran, kgs .lb.	.12 .14½	.12 .14½	.12 .12	.14½ .14½	.14½ .14½
powd, kgs .lb.	.09½ .10	.09½ .10	.10 .09½	.09½ .10	.10 .10
Chloride, crys, bbls .lb.	.08 .08	.08 .08	.08 .08	.08 .08	.08 .08
Chromate, kgs (FP) .lb.	.24 .27	.24 .27	.24 .24	.27 .27	.27 .27
Cyanide, drs .lb.	.55 .55	.55 .55	.55 .55	.55 .55	.55 .55
Iodide, 250 lb bbls .lb.	1.44 1.48	1.44 1.48	1.48 1.35	1.35 1.38	1.38 1.38
Metabisulfite, 300 lb bbls lb.	.18 .20	.18 .20	.18 .18	.21 .21	.21 .21
Muriate, bgs, dom, blk unit	.56 .58	.56 .58	.58 .53½	.53½ .58	.58 .58
Oxalate, bbls .lb.	.28 .30	.28 .30	.30 .25	.25 .30	.30 .30
Perchlorate, kgs,					
wks (FP) (A) .lb.	.09½ .11	.09½ .11	.09½ .09½	.11 .11	.11 .11

\* Spot price is ¼c higher.

(FP) Full Priority. (PC) Price Control. (A) Allocation.

January, '43: LII, 1

Chemical Industries

# PETROLEUM SULFONATES

## WAXES CERESINE & AMORPHOUS

# WHITE OILS PETROLATUMS

The Refinery of Controlled Specialization

# SHERWOOD

## REFINING COMPANY, INC.

ENGLEWOOD, NEW JERSEY · Refinery: WARREN, PA.

Edw. S. Burke  
J. F. Hollywood

## For Reasonably Prompt Delivery

AMINOACETIC ACID	OXYQUINOLIN BENZOATE
(GLYCOCOLL)	OXYQUINOLIN SULPHATE
CHINIOFON (YATREN)	POTASSIUM OXYQUINOLIN
CHLOROBUTANOL	SULPHATE
IODOXQUINOLIN	8-HYDROXYQUINOLIN
SULPHONIC ACID	8-HYDROXYQUINOLIN-
ETHYL CYANOACETATE	5-SULPHONIC ACID
TETRA IODO PHENOLPHTHALEIN SODIUM	

## EDW. S. BURKE

ESTABLISHED 1917

132 FRONT STREET, NEW YORK CITY

Representing:

CARUS CHEMICAL CO., INC.

BENZOL PRODUCTS CO.

Conveniently AVAILABLE PQ SILICATES  
OF SODA AND METSO DETERGENTS

**PHILADELPHIA QUARTZ CO.**

Gen'l Offices: 125 S. 3rd St.  
Phila. 9 PQ plants, located  
as shown on map, for prompt,  
economical service. Distribu-  
tors in over 65 cities.

# ISOPROPYL ALCOHOL

NOW AVAILABLE IN  
TANK CAR QUANTITIES

Selling Agents for  
SHELL CHEMICAL CO.



**R. W. GREEFF & CO.**

10 ROCKEFELLER PLAZA,  
NEW YORK CITY



## A DEPENDABLE SOURCE OF SUPPLY

With unusual production and delivery facilities, plants in 17 strategic locations, and offices in major cities, Reilly offers a complete line of coal tar bases, acids, oils, chemicals and intermediates. Booklet describing all of these products will be mailed on your letter-head request.

**REILLY TAR & CHEMICAL CORPORATION**  
NEW YORK • INDIANAPOLIS • CHICAGO

## HEEKIN LITHOGRAPHED METAL

### CANS

FOR EVERY CHEMICAL PRODUCT  
Any Size — Any Shape  
In Available Colors

Heekin High Speed Color Lithography presses are available for producing metal lithographed containers used in packaging products necessary to win the war. If you package such a product, we can serve you.

**THE HEekin CAN COMPANY, Cincinnati, Ohio**



## Potassium Permanganate Schaeffer's Salt

## Prices

	Current Market	1942 Low	1942 High	1941 Low	1941 High
Potassium (continued):					
Permanganate, USP, crys, 500 & 1000 lb drs, wks (FP)	.19 3/4	.20 3/4	.19 3/4	.21	.19 3/4
Prussiate, red, bbls	.70	.75	.70	.75	no prices
Yellow, bbls	.17	.19	.17	.19	.16
Sulfate, 90% basis, bgs ton	36.25		36.25		36.25
Titanium Oxalate, 200 lb bbls	.45		.45		.40
Pot & Mag Sulfate, 48% basis bgs ton	26.00		26.00	26.00	27.00
Propane, group 3, tks (PC) lb.	.02 3/4	.03 3/4	.02 3/4	.03 3/4	.04
Putty, com'l, tubs 100 lb.	3.15		3.15		3.15
Linseed Oil, kgs 100 lb.	5.00		5.00		5.00
Pyrethrum, conc liq: (A)					
2.4% pyrethrins, drs, frt all'd	5.75	4.30	5.75	4.40	4.98
3.6% pyrethrins, drs, frt all'd	8.53	6.35	8.53	6.60	7.20
Flowers, coarse, bgs lb.	.27	.28	.21	.28	.30
bgs lb.	.23	.22	.29	.21	.26
Fine powd, bbls	1.71		1.71		1.71
Pyridine, denat, 50 gal drs gal.	.46		.46		.48
Refined, drs lb.	no prices	no prices	no prices	no prices	no prices
Pyrites, Spanish cif Atlantic ports, blk unit	2.15	2.40	2.15	2.40	2.15
Pyrocatechin, CP, drs, tins lb.					

## Q

Quebracho, 35% liq tks lb.	.05 3/4		.05 3/4	.03 3/4	.05 3/4
450 lb bbls, c-l lb.	.05		.05	.04 3/4	.05
Solid, 63%, 100 lb bales cif	.04 3/4		.04 3/4		.04 3/4
Clarified, 64% bales lb.	.05		.05	.05	.05 3/4
Quercitron, 41 deg liq, 450 lb bbls	.10		.10	.08 3/4	.09 3/4
Solid, drs lb.	.18 3/4	.18	.18 3/4	.11	.16 3/4

## R

R Salt, 250 lb bbls, wks lb.	.55		.55		.55
Resorcinol, tech cans lb.	.68	.74	.68	.74	.74
Rochelle Salt, cryst lb.	.43 3/4		.43 3/4	.32 3/4	.43 3/4
Powd, bbls lb.	.42 3/4		.42 3/4	.31 3/4	.42 3/4
Rosin Oil, bbls, first run gal	.58	.48	.58	.40	.50
Second run gal.	.60	.50	.60	.42	.56
Third run, drs gal.	.64	.54	.64	.46	.57
Rosins 600 lb bbls, 100 lb unit ex, yard NY:					
B	3.75	2.96	3.90	2.06	3.55
D	2.84	2.73	4.05	2.08	3.55
E	3.99	3.06	4.09	2.07	3.62
F	4.06	3.27	4.13	2.08	3.59
G	4.15	3.52	4.13	2.18	3.52
H	4.10	3.53	4.13	2.27	3.50
I	4.15	3.53	4.13	2.26	3.50
J	4.27	3.56	4.14	2.36	3.61
K	4.35	3.66	4.16	2.38	3.68
M	4.40	3.67	4.17	2.47	3.71
N	4.45	3.69	4.81	2.79	4.52
WG	4.50	3.73	5.20	3.05	4.57
WW	4.50	3.73	5.20	3.10	4.57
X	4.50	3.73	5.20	3.10	4.57
Rosins, Gum, Savannah (280 lb. unit):					
B	3.10	2.08	3.25	1.31	3.00
D	3.19	2.31	3.40	1.51	3.00
E	3.34	2.41	3.44	1.60	3.07
F	3.41	2.62	3.47	1.62	3.04
G	3.50	2.87	3.47	1.60	2.97
H	3.45	2.88	3.48	1.63	2.97
I	3.50	2.88	3.50		2.98
K	3.62	2.91	3.62	1.84	3.06
M	3.70	3.05	3.70	2.01	3.13
N	3.75	3.05	3.75	2.01	3.13
WG	3.80	3.05	3.80	2.65	3.16
WW	3.85	3.06	3.85	2.76	3.97
X	3.85	3.10	3.85	2.96	4.02
Rotten Stone, bgs mines ton	25.00	37.50	25.50	37.50	25.50
Imported, lump, bbls lb.	no prices	no prices	no prices	no prices	no prices
Powdered, bbls lb.	no prices	no prices	no prices	no prices	no prices

## S

Sago Flour, 150 lb bgs lb.	.05	.05 3/4	.04 3/4	.05 3/4	.03 3/4
Sal Soda, bbls wks 100 lb.	1.20		1.20		1.20
Salt Cake, 94-96%, c-l, bulk wks	15.00		15.00	13.00	17.00
Chrome, c-l, wks ton	16.00		16.00		16.00
Saltpetre, gran, 450-500 lb bbls	.082		.082	.076	.082
Cryst, bbls lb.	.092		.092	.086	.092
Powd, bbls lb.	.092		.092	.086	.092
Satin, White, pulp, 550 lb bbls	.01 3/4	.01 3/4	.01 3/4	.01 3/4	.01 3/4
Schaeffer's Salt, kgs lb.	.46		.46		.46

\*\*Jan. 30, 1941, high and low based on 280 lb. unit. Dec. 30 prices.  
r Bone dry prices at Chicago 1c higher; Boston 1/2c; Pacific Coast 2c;  
Philadelphia deliveries f.o.b. N. Y., refined 6c higher in each case;  
(FP) Full Priority. (PC) Price Ceiling. (A) Allocation.

# Current

	Current Market	Shellac Sodium Sulfite			
		1942 Low	1942 High	1941 Low	1941 High
Shellac, Bone dry, bbls .lb. s	...	.42 1/4	.39	.42 1/4	.26
Garnet, bgs	...	.389	.37	.39	.20
Superfine, bgs	...	.366	.32	.366	.16 1/2
T. N., bgs	...	.355	.31	.355	.16
Silver Nitrate, vials	...	.32 3/8	.26 1/2	.32 3/8	.24
Slate Flour, bgs, wks	11.00	12.00	9.00	12.00	9.00
Soda Ash, 58% dense, bgs	...	1.15	...	1.15	...
c-l, wks	...	1.13	1.05	1.13	1.05
58% light, bgs	1.05	1.13	1.05	1.13	1.05
bik	...	.90	...	.90	...
paper bgs	1.05	1.08	1.05	1.08	1.05
bbls	...	1.35	...	1.35	1.45
Cautic, 76% grnd & flake, drs	...	2.70	...	2.70	...
76% solid, drs	...	2.30	...	2.30	...
Liquid sellers, tks	...	2.00	...	2.00	...

## SODIUM

Sodium Abietate, drs	...	.11	...	.11	...	.11
Acetate, 60% tech, gran, powd, flake, 450 lb bbls	...	.05	...	.05	.04	.06
90% bbls, 275 lb delv lb.	.06 1/4	.07	.06 1/4	.07	.06	.07
anhyd, drs, delv	.08 1/4	.10	.08 1/4	.10	.08 1/4	.10
Alginate, drs	...	.79	.69	.79	.39	.73
Antimoniate, bbls	.15	.15 1/4	.15	.15 1/4	.14	.15 1/4
Arsenate, drs	...	.08	...	.08	.07	.08 1/4
Arsenite, liq, drs	...	.35	...	.35	...	.35
Dry, gray, drs, wks	...	.08 1/4	.06 1/4	.08 1/4	.06 1/4	.09 1/4
Benzoate, USP kgs	.46	.50	.46	.50	.46	.50
Bicarb, powd, 400 lb bbl, wks	...	1.85	1.70	1.85	...	1.70
Bichromate, 500 lb cks, wks* (FP)	...	.07 1/4	...	.07 1/4	.06 1/4	.07 1/4
Bisulfite, 500 lb bbls, wks lb.	.03	.031	.03	.031	.03	.031
35-40% solbbls, wks 100 lb.	1.35	1.80	1.35	1.80	1.40	1.80
Chlorate, bgs, wks (A) lb.	...	.06 1/4	...	.06 1/4	...	.06 1/4
Cyanide, 96-98%, 100 & 250 lb drs, wks	.14	.15	.14	.15	.14	.15
Diacetate, 33-35% acid, bbls, lcl, delv	.09 1/4	.10 1/4	.09 1/4	.10 1/4	.09	.10
Fluoride, white 90%, 300 lb bbls, wks	...	.08	...	.08	.07	.08
Hydrosulfite, 200 lb bbls, f.o.b. wks	.17	.18	.17	.18	.17	.18
Hyposulfite, tech, pea crys 375 lb bbls, wks 100 lb.	2.75	2.70	2.70	3.00	...	2.80
Tech, reg cryst, 375 lb bbls, wks	...	2.45	...	2.45	...	2.45
Iodide, Jars	...	2.42	...	2.42	...	2.42
Metanilate, 150 lb bbls lb.	...	.40	...	.40	.41	nom.
Metasilicate, gran, c-l, wks	...	2.50	...	2.50	2.35	2.50
cryst, drs, c-l, wks 100 lb.	...	3.05	...	3.05	...	3.05
Anhydrous, wks, c-l, drs	...	4.00	...	4.00	3.75	4.00
wks, lcl, drs	...	5.05	...	5.05	5.05	5.05
Monohydrated, bbls	...	.03	.026	.03	.023	.026
Naphthenate, drs	.12	.19	.12	.19	.12	.19
Naphthionate, 300 lb bbl lb.	...	.50	...	.50	...	.50
Nitrate, 92% crude, 200 lb. bgs, c-l, NY (A)	...	29.35	...	29.35	28.70	29.35
100 bgs, same basis ton	...	30.05	...	30.05	29.40	30.05
Bulk	...	27.00	...	27.00	...	27.00
Nitrite, 500 lb bbls	...	.06 1/4	...	.06 1/4	.06 1/4	.11 1/4
Orthochlorotoluene, sulfonate, 175 lb bbls, wks lb.	.25	.27	.25	.27	.25	.27
Orthosilicate, 300 lb drs, c-l, anhyd	...	.04 1/4	.04 1/4	.04 1/4	.04 1/4	.04 1/4
hyd, flake, 300 lb bbls, c-l, f.o.b. wks	...	.0315	.03	.0315	.0285	.03
Perborate, drs, 400 lb lb.	...	.14 1/4	...	.14 1/4	.14 1/4	.15 1/4
Peroxide, bbls, 400 lb lb.	...	.17	...	.17	...	.17
Phosphate, di-sodium, tech, 310 lb bbls, wks 100 lb.	2.75	2.90	2.75	2.90	2.30	2.90
bgs, wks	2.55	2.70	2.55	2.70	2.10	2.70
Tri-sodium, tech, 325 lb bbls, wks	...	2.90	2.90	3.05	2.45	3.05
bgs, wks	...	2.70	2.70	2.85	2.25	2.85
Picramate, 160 lb kgs lb.	...	.65	...	.65	...	.65
Prussiate, Yellow, 350 lb bbls, wks	...	.11	...	.11	.10 1/4	.11
Pyrophosphate anhyd, 100 lb bbls, f.o.b. wks, firt eq lb.	.0528	.0610	.0528	.06	.0510	.0610
Sesquisilicate, drs, c-l, wks	...	3.05	...	3.05	...	3.05
Silicate, 60%, 55 gal drs, wks	...	1.70	...	1.70	...	1.70
40%, 55 gal drs, wks 100 lb.	...	.80	...	.80	...	.80
tk, wks	...	.65	...	.65	...	.65
Silicofluoride, 450 lb bbls NY	.09	.14 1/4	.09	.15	.09 1/4	.15
Stannate, 100 lb drs	.33 1/4	.36 1/4	.33 1/4	.36 1/4	.32 1/4	.37
Stearate, bbls	.19	.24	.19	.24	.19	.24
Sulfanilate, 400 lb bbls lb.	.16	.18	.16	.18	.16	.18
Sulfate, Anhyd, 550 lb bgs c-l, wks	1.70	1.90	1.70	1.90	1.45	1.90
Sulfide, 30% cryst, 440 lb bbls, c-l, wks	...	.024	...	.024	.02 1/4	.03
Solid, 650 lb drs, c-l, wks	...	.0315	...	.0315	.03	.03 1/4
Sulfite, powd, 400 lb bbls wks	...	.05 1/4	...	.05 1/4	...	.05 1/4

\* T. N. and Superfine prices quoted f.o.b. N. Y. and Boston; Chicago prices 1c higher; Pacific Coast 3c; Philadelphia f.o.b. N. Y. † Bags 15c lower; \* Dec. 30. (PC) Price Control. (A) Allocation.

## NEVILLE Available NOW! Resins

- \* Neutral
- \* Waterproof
- \* Resistant to chemicals
- \* Pale or dark colors in 5-160° C Melting Points

NEVINDENE\*  
NUBA\*  
PARADENE\*  
"R" RESINS  
"G" RESIN  
465 RESIN

\*REG. U.S. PAT. OFF.

Most synthetic resins are now under W. P. B. allocations. However, Neville Coumarone-Indene Resins are not covered by such allocation regulations.\*

\*as this "ad" is written

## THE NEVILLE COMPANY

PITTSBURGH • PA.

Chemicals for the Nation's War Effort

BENZOL • TOLUOL • XYLOL • TOLUOL SUBSTITUTES • CRUDE COAL-TAR SOLVENTS  
HI-FLASH SOLVENTS • PAINT AND VARNISH REMOVERS • COUMARONE-INDENE RESINS  
RUBBER COMPOUNDING MATERIALS • WIRE ENAMEL THINNERS • DIBUTYL PHTHALATE  
TAR PAINTS • RECLAIMING, PLASTICIZING, NEUTRAL, CREOSOTE, SHINGLE STAIN OILS



## CHEMICALS FOR INDUSTRY

## THE HARSHAW CHEMICAL CO.

Cleveland, Ohio, and Principal Cities

## SODIUM BENZOATE

## TARTARIC ACID

## WILLIAM D. NEUBERG COMPANY

420 LEXINGTON AVENUE, NEW YORK, N. Y.

TELEPHONE LEXINGTON 2-3324

# PEROXIDES AND PERCOMPOUNDS

**HYDROGEN PEROXIDE**

**POTASSIUM PERSULFATE**

**AMMONIUM PERSULFATE**

**PYROPHOSPHATE-PEROXIDE**

**MAGNESIUM PEROXIDE**

**UREA PEROXIDE**

**AND OTHER ORGANIC AND INORGANIC  
PERCOMPOUNDS**

**Buffalo Electro-Chemical Company, Inc.**  
BUFFALO, NEW YORK

## SULPHUR 99.5% PURE

Ample stocks of 99.5% pure crude sulphur—free from arsenic, selenium and tellurium—plus up-to-date production and shipping facilities at our mines at Port Sulphur, Louisiana, and Freeport, Texas, assure our customers the utmost in steady, dependable service.

**FREEPORT SULPHUR COMPANY**

122 East 42nd Street • New York

**Ammonium Chloride U. S. P.**

**Potassium Acetate U. S. P.**

**Iron Phosphate Soluble U. S. P.**

**SCHUYLKILL CHEMICAL CO.**

2346 Sedgley Ave.

Philadelphia, Pa.

### Sodium Sulfoeyanide Triamylamine

### Prices

	Current Market	1942 Low High	1941 Low High
Sodium (continued):			
Sulfoeyanide, drs .....lb.	.55 .65	.55 .65	.28 .65
Sulfuricinate, bbls .....lb.	... .12	... .12	... .12
Supersulfate (see sodium sesquisulfate)			
Tungstate, tech, crys, kgs lb.	no prices	no prices	no prices
Sorbitol, drs, wks .....lb.	... .17 1/4	... .17 1/4	... .14 1/4 .17 1/4
Spruce, Extract, ord, tks lb.	... .01 1/4	... .01 1/4	... .01 1/4 .01 1/4
Ordinary, bbls .....lb.	... .02 1/4	... .02 1/4	... .01 1/4 .01 1/4
Super spruce ext, tks .....lb.	... .01 1/4	... .01 1/4	... .01 1/4 .01 1/4
Super spruce ext, bbls lb.	... .02	... .02	... .01 1/4 .02
Super spruce ext, powd, bags .....lb.	... .04 1/4	... .04 1/4	... .04
Starch, Pearl, 140 lb bgs 100 lb.	... 3.10	... 3.10	... 2.90 3.10
Powd, 140 lb bgs 100 lb.	... 3.20	... 3.20	... 3.05 3.80
Potato, 200 lb bgs .....lb.	... .0637	... .061	... .0637 .0585
Imp, bgs .....lb.	no prices	no prices	no prices
Rice, 200 lb bbls .....lb.	... .09 .10	... .09 .10	... .07 1/4 .09 1/4
Sweet Potato, 240 lb bbls, f.o.b. plant .....100 lb.	nom. 7.00	nom. 7.00	nom. 7.00
Wheat, thick, bgs .....lb.	... .05	... .05	... .05
Strontium, carbonate, 600 lb bbls, wks .....lb.	no prices	no prices	no prices
Nitrate, 600 lb bbls, NY lb.	... .07 1/4 .08 1/4	... .07 1/4 .08 1/4	... .07 1/4 .08 1/4
Sucrose, octa-acetate, den, grd, bbls, wks .....lb.	... .45	... .45	... .45
tech, bbls, wks, .....lb.	... .40	... .40	... .40

### SULFUR

Sulfur, crude, f.o.b. mines ton	16.00	16.00	16.00
Flour, com'l, bgs 100 lb.	1.65 1.95	1.65 1.95	1.40 1.95
bbls 100 lb.	1.95 2.50	1.95 2.50	1.95 2.50
Rubbermakers, bgs 100 lb.	2.20 2.05	2.20	2.05
bbls 100 lb.	2.35	2.35	2.35
Extra fine, bgs 100 lb.	2.35	2.35	2.35
Superfine, bgs 100 lb.	2.65 2.80	2.65 2.80	2.65 2.80
bbls 100 lb.	2.25 3.10	2.25 3.10	2.25 3.10
Flowers, bgs 100 lb.	3.05 3.35	3.05 3.35	2.80 3.35
bbls 100 lb.	3.40 3.70	3.40 3.70	3.15 3.70
Roll, bgs 100 lb.	2.40 2.70	2.40 2.70	2.15 2.70
bbls 100 lb.	2.30 2.85	2.30 2.85	2.30 2.85
Sulfur Chloride, 700 lb drs, wks .....lb.	.03 .08	.03 .08	.03 .08
Sulfur Dioxide, 150 lb cyl lb.	.07 .08	.07 .09	.07 .09
Multiple units, wks .....lb.	.04 1/4 .06	.04 1/4 .07	.04 1/4 .07
tk, wks .....lb.	.04 .06	.04 .06	.04 .06
Refrigeration, cyl, wks lb.	.13 .21	.13 .40	.16 .40
Multiple units, wks .....lb.	... .06 1/4	... .10	... .07 1/4 .10
Sulfuryl Chloride .....lb.	.15 .40	.15 .40	.15 .40
Sumac, Italian, grd .....ton	no prices	no prices	no prices
Extract, 42°, bbls .....lb.	... .08	... .06 1/4 .08	... .06 .08
Superphosphate, 16% bulk, wks .....ton	10.10 10.74	10.10 10.80	8.50 10.00
Run of pile .....ton	9.60 10.24	9.60 10.24	8.00 9.60
Triple, 40-48%, a.p.a. bulk, wks, Balt. unit .....ton	... .85	... .85	... .68 .80

### T

Talc, crude, 100 lb bgs, NY ton	12.50 24.50	12.50 24.50	14.00 16.00
Ref'd 100 lb bgs, NY ton	17.25 19.25	17.25 19.25	17.25 19.25
French, 220 lb bgs, NY ton	no prices	no prices	no prices
Ref'd, white bgs, NY ton	no prices	no prices	no prices
Italian, 220 lb bgs to arr ton	no prices	no prices	no prices
Ref'd, white bgs, NY ton	no prices	no prices	no prices
Tankage, Grd, NY unit s	... 4.60	4.25 4.85	2.35 4.10
Ungd .....unit s	... 5.10	5.25 5.70	2.35 5.10
Fert grade, f.o.b. Chgo unit s	... 5.53	5.60 5.90	2.35 5.60
South American cif unit s	... nom.	5.05 5.60	2.60 4.75
Tapioca Flour, high grade, bgs .....lb.	.04 1/4 .07 1/4	.04 .07 1/4	.03 .06 1/4
Tar Acid Oil, 15%, drs gal.	... .27 1/4	... .27 1/4	.22 .24
25% drs (A) .....gal.	... .31 1/4	... .31 1/4	.25 .27 1/4
Tar, pine, delv, drs .....gal.	... .33	.32 1/4 .33	.26 .29
tk, delv, E. cities .....gal.	... .24 1/4	.24 .24 1/4	.22
Tartar Emetic, tech, bbls lb.	... .47 1/4	... .47 1/4	.36 1/4 .47 1/4
USP, bbls .....lb.	.52 1/4 .53	.52 1/4 .53	.42 .53
Terpineol, den grade, drs lb.	... .17	... .17	.17
Tetrachlorethane, 650 lb drs lb.	.08 .08 1/4	.08 .08 1/4	.08 .08 1/4
Tetrachlorethylene, drs, tech lb.	.08 .09	.08 .09	.08 .09
Tetralene, 50 gal drs, wks lb.	... .19	... .19	.19 .21
Thiocarbamid, 170 lb bbls lb.	... .24	... .24	.24
Tin, crystals 500 lb bbls, wks lb.	.39 .39 1/4	.39 .39 1/4	.38 .40
Metal, NY (PC) (A) .....lb.	... .52	... .52	.501 .52 1/4
Oxide, bbls, wks .....lb.	... .55	... .57	.54 .56
Tetrachloride, 100 lb drs, wks .....lb.	no prices	no prices	.25 1/4 .31
Titanium Dioxide, 300 lb bbls (PC) .....lb.	.05 1/4 .14 1/4	... .14 1/4	.13 1/4 .14 1/4
Barium Pigment, bbls .....lb.	.05 1/4 .06 1/4	.05 1/4 .06 1/4	.05 1/4 .06 1/4
Calcium Pigment, bbls lb.	.05 1/4 .05 1/4	.05 1/4 .05 1/4	.05 1/4 .05 1/4
Titanium tetrachloride, drs, f.o.b. Niagara Falls .....lb.	.32 .45	.32 .45	.32 .45
Titanium trichloride 23% sol, bbls f.o.b. Niagara Falls lb.	.22 .26	.22 .26	.22 .26
20% solution, bbls .....lb.	.175 .215	.175 .215	.175 .215
Toluidine, mixed, 900 lb drs, wks .....lb.	... .26	... .26	... .26
Toluol, drs, wks (FP) (A) .....gal.	... .33	... .33	.32 .33
tk, frt all'd (FP) .....gal.	... .28	... .28	.27 .28
Toner Lithol, red, bbls .....lb.	.55 .60	.55 .60	.55 .60
Para, red, bbls .....lb.	.70 .75	.70 .75	.70 .75
Toluidine, bgs .....lb.	... 1.05	... 1.05	... 1.05
Triacetin, 50 gal drs, wks, lb.	... .26	... .26	... .26
Triamyl Borate, lcl, drs, wks lb.	... .33	... .33	.27 .33
Triamylamine, drs, lcl, wks, drs .....lb.	... 1.01	... 1.01	... 1.01

(FP) Full Priority. (A) Allocation.

## Current

	Current Market	1942		1941	
		Low	High	Low	High
Tributylamine, lcl, drs, f.o.b. wks	.81	.24	.81	.24	.81
Tributylcitrate, drs, frt all'd lb.	.34	.24	.34	.24	.26
Tributyl Phosphate, frt all'd lb.	.47	.47	.47	.42	.47
Trichlorethylene, 600 lb drs, frt all'd E. Rocky Mts lb. (FP)	.08	.08	.08	.08	.09
Tricresyl phosphate, tech, (FP)	.25	.31	.25	.31	.22
Triethanolamine, 50 gal drs, wks	.19	.19	.19	.19	.19
Triethylamine, lcl, drs, tks, wks	.18	.18	.18	.18	.18
Triethylamine, lcl, drs, f.o.b. wks	1.16	1.16	1.16	1.16	1.16
Triethylene glycol, drs, wks lb.	.26	.26	.26	.26	.26
Trihydroxyethylamine Oleate, bbls	.30	.30	.30	.30	.30
Stearate bbls	.30	.30	.30	.30	.30
Trimethyl Phosphate, drs, lcl, f.o.b. dest.	.54	.56	.54	.56	.50
Trimethylamine, c-l, drs, frt all'd E. Mississippi	.85	.85	.85	.85	1.00
Triphenylguanidine	.58	.60	.58	.60	.60
Triphenyl Phosphate, drs (FP)	.31	.32	.31	.32	.33
Tripoli, airfloatd bgs, wks ton	21.50	21.00	26.00	21.00	26.00
Turpentine (Spirits), c-l, NY dock, bbls	.75½	.69½	.82½	.45	.83
Savannah, bbls*	.63½	.55½	.70½	.33½	.72½
Wood Steam dist, drs, c-lcl, NY	.64	.67	.61	.80	.35
Wds, delv E. cities	.59	.56	.72	.72	.76
Wood, dest dist, c-lcl, drs, delv E. cities	.55	.58	.55	.70	.35
Wds, delv E. cities	.50	.50	.58	.58	.65

## U

Urea, pure 112 lb cases	.12	.12	.12	.12	.12
Fert grade, bgs, c.i.f. S.A. points	no prices	no prices	no prices	no prices	no prices
Dom f.o.b., wks	80.00	80.00	80.00	85.00	85.00
Urea Ammonia, liq, nitrogen basis	121.58	121.58	121.58	121.58	121.58

## V

Valonia beard, 42%, tannin bgs	no prices	no prices	no prices	no prices	no prices
Cups, 32% tannin bgs ton	no prices	no prices	no prices	no prices	no prices
Extract, powd, 63% lb.	no prices	no prices	no prices	no prices	no prices
Vanillin, ex eugenol, 25 lb tins, 2000 lb lots	2.60	2.00	2.60	2.60	2.60
Ex-guaiacol	2.35	2.35	2.35	2.50	2.55
Ex-lignin	2.35	2.35	2.35	2.50	2.55
Vermilion, English, kgs	3.12	3.17	3.12	3.17	3.12

## W

Wattle Bark, bgs	41.00	43.00	41.00	43.00	37.50	43.00
Extract, 60%, tks, bbls lb.	.04475	.046	.04475	.0475	.037½	.05
Wax, Bayberry, bgs	.18	.20	.18	.20	.18	.20
Bees, bleached, white 500 lb slabs, cases	.61	.58	.61	.56½	.56	.56
Yellow, African, bgs lb.	.49	.49	.49	.30	.47	.47
Brazilian, bgs lb.	.50	.50	.50	.31	.50	.50
Refined, 500 lb slabs, cases lb.	.59	.60	.59	.60	.59	.59
Candelilla, bgs	.38	.33	.38	.19	.38	.38
Carnauba, No. 1, yellow, bgs	.83½	.83½	.89	.68	.88	.88
No. 2, yellow, bgs	.81½	.81½	.88	.66	.85	.85
No. 2, N. C., bgs	.75½	.85	.75½	.62	.79	.79
No. 3, Chalky, bgs	.71½	.78	.71½	.55	.78	.78
No. 3, N. C., bgs	.75½	.79	.74½	.58	.79	.79
Ceresin, dom, bgs	.13½	.14	.13½	.14	.11	.14
Japan, 224 lb cases	no stocks	.30	.45	.16½	.35	.35
Montan, crude, bgs	.45	.46	.45	.46	.45	.46
Paraffin, see Paraffin Wax						
Spermaceti, blocks, cases lb.	.26	.27	.24	.27	.24	.25
Cakes, cases	.27	.28	.25	.28	.25	.26
Wood Flour, c-l, bgs	24.00	25.00	24.00	25.00	24.00	25.00
bgs, c-l, wks	18.00	22.00	18.00	22.00	18.00	19.00
Whiting, chalk, com 200 lb	20.00	24.00	16.00	24.00	16.00	20.00
Gilders, bgs, c-l, wks	20.00	24.00	16.00	24.00	16.00	20.00

## X

Xylol, frt all'd, East 10° tks, wks	.27	.27	.27	.27	.29	.29
Com'l tks, wks, frt all'd gal.	.27	.27	.27	.26	.27	.27
Xylidine, mixed crude, drs lb.	.35	.36	.35	.36	.35	.36

## Z

Zein, bgs, 1000 lb lots, wks	.25	.20	.25	.20	.20	.20
Zinc Acetate, tech, bbls, lcl, delv	.16	.17	.16	.17	.15	.16
Arsenite, bgs, frt all'd lb.	.12	.12	.12	.12	.12	.12
Carbonate tech, bbls, NY lb.	.14	.20	.14	.20	.14	.20
Chloride fused, 600 lb drs, wks	.05	.05	.05	.05	.05	.05
Gran, 500 lb drs, wks lb.	.0575	.0575	.0575	.0575	.0575	.0575
Soln 50%, tks, wks 100 lb.	2.50	2.50	2.50	2.25	2.50	2.50

(FP) Full priority. (PC) Price Ceiling. Dec. 30 price.

# For Rose Odors

## BUTYL PHENYL ACETATE

Excellent in Rose Odors and  
Floral Odors generally

Has fruity, floral characteristics  
and is very stable

Economical to use and there is still  
an ample supply

*Aromatics Division*  
**GENERAL DRUG COMPANY**  
644 Pacific St., Brooklyn, N. Y.

9 S. Clinton St., Chicago 1019 Elliott St., W., Windsor, Ont.

# STEARATES

ZINC STEARATE  
CALCIUM STEARATE  
ALUMINUM STEARATE  
MAGNESIUM STEARATE

## Stocks at

NEW YORK ST. LOUIS DALLAS SAN FRANCISCO  
CHICAGO KANSAS CITY LOS ANGELES SEATTLE

**FRANKS CHEMICAL PRODUCTS CO.**  
BLDG. 9. BUSH TERMINAL — BROOKLYN, N.Y.

Ready to Serve—



Aqua Ammonia  
Anhydrous Ammonia  
Yellow Prussiate of Soda  
Calcium Ferrocyanide  
Calcium Chloride  
Tri-Sodium Phosphate

**HENRY BOWER CHEMICAL**  
MANUFACTURING COMPANY

29th & GRAY'S FERRY ROAD PHILADELPHIA, PA.

# Distilled

## FATTY ACIDS

### Of High Quality

Wecoline Distilled Fatty Acids have set the standards for Purity for many years.

Wecoline specializes in distilled fatty acids.

**COCOANUT - LINSEED - SOYA  
TALLOW-WHITE OLEIC-STEARIC-PEANUT**

and in addition special Fatty Acids such as:

**CAPRIC - LAURIC**

Wecoline also produces Twitchell Split Fatty Acids.

Wecoline is producing Fatty Acid Products to meet rigid War Specifications for synthetic rubber, fabric coating, bullet-resistant glass, and numerous other industries.

*"Consult Wecoline First"*

WECOLINE DIVISION

**E. F. DREW & CO., Inc.**

OIL and FAT PROCESSORS • • • EDIBLE and INDUSTRIAL  
BOONTON, N. J. NEW YORK BOSTON CHICAGO

## "ELECTROPHOS"

A superior quality of triple superphosphate of over 48% available P<sub>2</sub>O<sub>5</sub>.



**ELEMENTAL YELLOW PHOSPHORUS** of very high quality produced by electric furnace reduction of phosphate rock from our own mines. Shipments in drums, either solid or wedges.

**PHOSPHORIC ACID—75% Pure Food Grade.** An acid made from our own high quality electric furnace phosphorus.

**THE PHOSPHATE MINING CO**  
110 WILLIAM STREET, NEW YORK • NICHOLS, FLORIDA

## BEACON

A DIRECT SOURCE OF SUPPLY  
**CALCIUM STEARATE**

FOR  
**WATERPROOFING**

PLASTICS and Other Industries

Zinc, Aluminum, Magnesium, Sodium  
**STEARATES**

—THE BEACON COMPANY—

97 Bickford Street, Boston, Mass.

## Zinc Cyanide Whale Oil

## Prices Current

	Current Market	1942 Low	1942 High	1941 Low	1941 High
Zinc (continued):					
Cyanide, 100 lb drs ... lb.	.33	.37	.33	.37	.33
Dust, 500 lb bbls, c-l, delv lb.	...	.1035	...	.1035	.0994
Metal, high grade slabs, c-l, NY (FP) (PC) 1000 lb.	...	8.65	...	8.65	7.65
E. St. Louis ... 100 lb.	...	8.25	...	8.25	7.25
Oxide, Amer, bgs, wks lb.	...	.0794	...	.0794	.0694
French 300 lb bbls, wks lb.	...	.0794	...	.0794	.0694
Palmitate, bbls ... lb.	.32	.33	.32	.33	.2494
Resinate, fused, pale bbls lb.	.11	.12	.10	.12	.10
Stearate, 50 lb bbls ... lb.	.30	.31	.30	.31	.22
Sulfate, crys, 40 lb bbls wks	...	.360	.360	.365	.315
Flake, bbls ... lb.	...	.410	.405	.410	.335
Sulfide, 500 lb bbls, delv lb.	...	.0894	.08	.0894	.08
bgs, delv (PC) ... lb.	.14	.1494	.14	.1494	.08
Sulfocarbonate, 100 lb kgs lb.	.24	.25	.24	.29	.0394
Zirconium Oxide, crude, 70-75% grd, bbls, wks ton	75.00	100.00	75.00	100.00	75.00

## Oils and Fats

Babassu, tks, futures ... lb.	...	.111	no prices	...	.06
Castor, No. 3, 400 lb drs lb.	...	.1394	.1294	.1394	.0180
(A) (PC) Blown, 400 lb drs	...	.1594	.14	.1594	.1194
China Wood, spot NY lb.	...	.39	.39	.4094	.2794
tks, spot NY ... lb.	...	.3875	.3875	...	.2694
Coconut, edible, drs NY ... lb.	...	.0985	...	...	.08
Manila, tks, NY ... lb.	...	.0835	...	...	.0394
tks, Pacific Coast ... lb.	...	no prices	no prices	...	.10
Cod, Newfoundland, 50 gal bbls	...	.90	.85	.90	.0794
Copra, bgs, NY ... lb.	...	no prices	no prices	...	.0180
Corn, crude, tks, mills ... lb.	...	.1294 nom.	.1294	.1294	.0694
Refd, 375 lb bbls, NY lb.	...	.1594 nom.	.15	.1594	.1494
Degras, American, 50 gal bbls, NY	...	.1294 nom.	.1194	.1294	.0794
Greases, Yellow ... lb.	...	.0929	...	.0929	.0494
White, choice, bbls, NY lb.	...	.097	...	.097	.05
Lard, Oil, Edible, prime lb.	...	.16	.1594	.16	.0894
Extra, bbls ... lb.	...	.1594	.15	.1594	.0894
Extra, No. 1, bbls ... lb.	...	.1494	.1494	.1494	.08
Linseed, Raw less than 5 drs lots	...	.14	.125	.149	.091
drs, c-l, spot ... lb.	...	.132	.117	.143	.095
tks ... lb.	...	.128	.130	.108	.134
Menhaden, tks, Baltimore gal.	...	.089	.6394	.666	.30
Refined, alkali, drs ... lb.	...	.127	.129	.12	.084
Kettle boiled, drs ... lb.	...	.137	.139	.13	.096
Light pressed, drs ... lb.	...	.117	.119	.11	.139
tks ... lb.	...	.109	.11	.102	.11
Neatsfoot, CT, 20°, bbls, NY lb.	...	nom.	.2594	...	.1894
Extra, bbls, NY ... lb.	...	nom.	.1494	...	.0894
Pure, bbls, NY ... lb.	...	nom.	.1894	.1794	.1294
Oiticica, bbls ... lb.	...	.23	.25	.29	.1694
Oleo, No. 1, bbls, NY ... lb.	...	nom.	.1394	...	.0794
No. 2, bbls, NY ... lb.	...	.13	.13	.13	.0794
Olive, denat, bbls, NY ... gal.	3.50	4.00	3.50	4.50	2.25
Edible, bbls, NY ... gal.	4.00	4.25	4.00	5.50	4.75
Foots, bbls, NY ... lb.	.19	nom.	.19	.20	.1094
Palm, Kernel, bulk ... lb.	...	no prices	no prices	...	no prices
Niger, cks ... lb.	...	.0825	.0925	...	.0494
Sumatra, tks ... lb.	...	no prices	no prices	...	.02
Peanut, tks, f.o.b. mill ... lb.	...	.13	.1294	.13	.0594
Refined, bbls, NY ... lb.	.17	nom.	.1694	.17	.08
Perilla, drs, N Y (A) ... lb.	...	.246	...	.246	.18
tks, Coast ... lb.	...	.2380	...	.2380	.1694
Pine, see Pine Oil, Chem Sec.	...	.18	.1894	.18	.1694
Rapeseed, blown, bbls, NY lb.	...	nom.	nom.	...	.95
Denatured, drs, NY ... gal.	...	.1194	.1394	.1194	.0794
Red, Distilled, drs ... lb.	...	.11	.1194	.11	.1294
tks ... lb.	...	.0890	...	.6694	.39
Sardine, Pac Coast, tks ... gal.	...	.127	.129	.12	.129
Refined alkali, drs ... lb.	...	.117	.119	.11	.119
Light pressed, drs ... lb.	...	.109	.11	.102	.11
tks ... lb.	...	...	...	...	.078
Soy Bean, crude	...	...	...	...	...
Dom, tks, f.o.b. mills ... lb.	.1294	nom.	.1294	nom.	.0594
Crude, drs, NY ... lb.	.13	...	.13	nom.	.0694
Ref'd, drs, NY ... lb.	.1494	nom.	.1494	nom.	.0594
tks ... lb.	.1394	nom.	.1394	nom.	.0794
Sperm, 38° CT, bleached (FP) bbls, NY (A) lb.	.1301	...	.1301	nom.	.11
45° CT, blchd, bbls, NY lb.	.1278	...	.1278	nom.	.109
Stearic Acid, double pressed dist bgs	.14	.1594	.14	.1694	.0994
Double pressed saponified bgs	.1594	.1694	.1594	.1694	.0994
Triple pressed dist bgs lb.	.17	.1894	.17	.1994	.1294
Stearine, Oleo, bbls ... lb.	...	.11	...	.11	.09
Tall, crude, drs, c-l, wks ton	...	55.00	40.00	55.00	...
tks, wks ... lb.	...	40.00	30.00	40.00	...
dist, drs, c-l, delv ... lb.	...	.03	.04	.03	...
Tallow City, extra loose lb.	...	.0494	.0394	.0494	...
Edible, tierces ... lb.	...	.0974	...	.0974	...
Acidless, tks, NY ... lb.	.13	nom.	.13	nom.	.0794
Turkey Red, single, drs ... lb.	...	.0894	...	.0894	.0694
Double bbls ... lb.	...	.12	...	.12	.0994
Whale:	...	...	...	...	...
Winter bleach, bbls, NY lb.	...	.1110	...	.1110	.099
Refined, nat, bbls NY ... lb.	...	.1070	...	.1070	.095

(FP) Full Priority. (PC) Price Control. (A) Allocation.  
\* Previous prices were on gallon basis.

# PROFESSIONAL DIRECTORY

## FOSTER D. SNELL, Inc.

### Chemists - Engineers

Our chemical, engineering, bacteriological and medical staffs with completely equipped laboratories are prepared to render you

**EVERY FORM of CHEMICAL SERVICE**

315 Washington Street, Brooklyn, N. Y.

## MOLNAR LABORATORIES

Analytical and Consulting Chemists

**Phenol Coefficient Tests**

**Hormone Assays**

**Biochemical Determinations**

**Investigation, Control and Development of**

**Pharmaceutical Products**

211 East 19th St., N. Y. Gramercy 5-1030

## T. E. R. SINGER

**Technical Literature Searches,  
Bibliographies and Abstracting**

**501 Fifth Avenue, New York**

Murray Hill 2-5346-7

## The Patents Question

(Continued from page 78)

The thought could be advanced that, if any man in the United States feels that his interests are being harmed in any shape or form by an existing patent based on untrue statements and disclosures, this situation can be remedied by the simple process of resorting to the country's courts. This is correct, but did the writers of the Constitution really intend to give the inventor only half a loaf, or a loaf so heavily weighed down that he is unable to gain access to it?

We have seen in the chemical industry, during the last twenty years, patent litigations in which several hundred thousand dollars were spent in lawyers' fees, in preparing the case, and in the conduct of the trial. The average inventor is a poor man, who often may not have five dollars to his name. Did the Constitution intend to classify people into those who can afford to litigate and those who cannot afford to litigate, and give special protection to the wealthy?

It is quite evident that the inventor today is handicapped if he cannot afford the services of a first class patent lawyer; if he cannot go into court to defend his patent, when necessary. Our second major suggestion for patent reform is that there should be a single patent court, of the same standing and the same character as the United States Supreme Court, but composed of technical people, people known not to have any private interests which would interfere with the formation of an unbiased judgment of a case.

A court so conducted would make unnecessary, or might prohibit, the appearance of patent lawyers in a case. Naturally, such a court can function properly only if it has the knowledge and the technical experience necessary to handle a case, whether it be in the chemistry of alkaloids or the chemistry of vitamins, dyestuffs, and so on. And perhaps the idea of an arbitration court might well

solve this problem; both parties would agree to the selection of a given outstanding man to judge the case for them and arrive at a decision.

It is quite evident that all expenses involved in such cases should be paid for by the Patent Office, since the dispute would be based on a previously existing patent, or on a controversial subject fully within the scope of the material handled by the Patent Office. Since the Constitution seeks to give every citizen equal rights, and since the Constitution seeks to give every inventor the privilege of a temporary monopoly, it is only fair that the state should carry the financial burden. Otherwise such a burden could weigh unevenly on the individual citizens, depending on their ability to pay.

Our statistical files show that it costs us an average of about six hundred dollars to obtain a patent, after the invention has been made and completed in the laboratory. Does such an expense not constitute, in itself, a monopoly, by depriving those inventors who do not have six hundred dollars from being able to secure their letters of patents?

Colonel H. A. Toulmin, in *CHEMICAL INDUSTRIES*, makes the statement that the number of patents "is about in direct proportion to the industrial success of the respective nations." If this statement is true, should we as a nation not be interested in making it easy for our citizens to obtain patents at a low and nominal cost? No doubt, a low cost system would increase, if not double, the pace of progress in the chemical industry, which is based on the inventive spirit of the chemists.

When a patent is finally received, one usually has nothing more than an invitation to a lawsuit, which again deprives independent chemists with small financial means from economic exploitation of their labor in a deserving way.

Not only does such a condition impose a hardship on the independent professional chemist, but it is a great injustice from

a humane point-of-view. Time and time again, the independent inventor is confronted with the fact that an organization of clever patent lawyers, backed by a powerful industrial organization, has received an all-embracing chemical patent, sometimes based on an unsubstantiated theoretical idea which interferes with his practical and proven inventive thought or discovery in the same field.

Truly such a patent may not stand up in court, but who has the money, among independent chemical inventors, to bring the matter to court and carry it through to a successful termination?

An adequate patent court therefore would be most helpful, and equally helpful would be a better, more thorough system of examining a patent before it is granted.

One possible method of preventing false claims from obtaining patent protection would be accomplished by publishing patent applications before final issuance, thus giving anyone interested a chance to interfere; that is, to interfere only to the extent of advising the examiner of a particular part of an application which he contends is incorrect, not new, or not in conformity with the present patent law or with the Constitution itself.

Such right of interference should be limited in time, and no correspondence between the examiner and the interfering party should be allowed, since such correspondence could easily lead to the misuse of such a privilege. This privilege of interference before a patent is granted, but at the point of acceptance by the Patent Office, does exist in certain European countries, but in many instances this privilege has been misused in the past by powerful concerns having any number of patent lawyers at their disposal. This abuse of a privilege had the sole object of preventing the rightful inventor from obtaining his well-earned protection, as granted by letters of patents. From the European experience, we should accept what is constructive and reject those paths which have led to abuse.

**Local Stocks  
Chemicals • Equipment**

# The Chemical MARKET PLACE

(CLASSIFIED ADVERTISEMENTS)

**Raw Materials  
Specialties • Employment**

## Massachusetts

**ALAN A. CLAFLIN**  
Manufacturers' Agent  
**DYESTUFFS and CHEMICALS**  
Specializing in  
**BENTONITE**  
AND  
**TALC**  
88 Broad Street Boston, Mass.  
TELEPHONE Liberty 5944 - 5945

**DOE & INGALLS, INC.**  
**Chemicals**  
and  
**Solvents**  
  
Full List of Our Products, see Chemical Guide-Book  
Everett Station, Boston EVERETT 4610

**E. & F. KING & Co., Inc.**  
Est. 1834  
399-409 Atlantic Avenue Boston, Mass.  
New England Sales Agent  
**HURON PORTLAND CEMENT CO.**  
**Industrial Chemicals**  
**(CO<sub>2</sub>)**  
Solid Carbon Dioxide

## Rhode Island


**GEORGE MANN & CO., INC.**  
Fox Pt. Blvd., Providence, R. I.  
(Phone—Gaspee 8466)  
Branch Office  
NORTH STATION INDUSTRIAL BLDG.  
150 Causeway St., Boston, Mass.  
(Phone—Capital 2217 and 2218)  
**Industrial Chemicals**  
**Glycerine**  
**Stearic Acid**

**J. U. STARKWEATHER CO.**  
INCORPORATED  
929 Hospital Trust Bldg.  
Providence, R. I.  
**INDUSTRIAL CHEMICALS**  
**TEXTILE SPECIALTIES**

## New Jersey

**Semi-Carbazide Hydrochloride**  
•  
**Hydrazine Sulphate**  
Commercial and C. P.  
•  
**Hydrazine Hydrate**  
**FAIRMOUNT CHEMICAL CO., INC.**  
Manufacturers of Fine Chemicals  
600 Ferry Street Newark, N. J.

FOR PROMPT SERVICE IN THE  
NEW YORK AREA  
**SOLVENTS—ALCOHOLS**  
**EXTENDERS**  
  
**CHEMICAL SOLVENTS**  
Incorporated  
60 PARK PLACE NEWARK, N. J.

FOR ALL INDUSTRIAL USES  
**CHEMICALS**  
SINCE 1855  
Spot Stocks  
Technical Service  
  
**ALEX. C. FERGUSSON CO.**  
Drexel Building PHILADELPHIA, PA.  
Lombard 2410-11-12

## New York

## Hormones

**HERMAN MEYER DRUG CO., INC.**  
Manufacturing Chemists  
66-38 Clinton Ave. Maspeth, N. Y.  
NE 9-2110 Cable: Sulfanyl

## Illinois

Now Available  
CHEMICALLY PURE  
**METHYL METHACRYLATE**  
(Monomeric - Liquid)  
 $\text{CH}_2 = \text{C}(\text{CH}_3) - \text{COOCH}_3$   
Boiling Point.....100.5° C  
Specific Gravity.....0.950  
Refractive Index.....1.417  
Viscosity at 25° C.....0.59  
Color.....Water-Clear  
Samples Upon Request  
**PETERS CHEMICAL MFG. CO.**  
3623 Lake Street  
MELROSE PARK, ILL.

## Illinois

**CLARENCE MORGAN**  
INCORPORATED  
(Chemicals)  
TELEPHONE SUPERIOR 2482  
919 NORTH MICHIGAN AVENUE  
CHICAGO

GLIDDOL R. A natural product of  
Soya Bean Oil

**CHEMICALS**  
"From an ounce to a carload"  
SEND FOR OUR CATALOG  
**ARTHUR S. LAPINE & COMPANY**  
LABORATORY SUPPLIES AND REAGENTS  
INDUSTRIAL CHEMICALS  
114 WEST HUBBARD STREET  
CHICAGO

## Patents

CALL OR WRITE **PATENT YOUR IDEAS**  
1. FREE CONSULTATION REGISTER YOUR  
2. BROADWAY LITERATURE TRADE MARKS  
3. Submit the NAME you wish to Register  
4. Send a Sketch or Model of your invention for  
"CONFIDENTIAL ADVANCE"  
**Z. H. POLACHEK**  
IDEAS 1234 BROADWAY • NEW YORK • AT 31 ST.  
New: LOgare 3-3088  
PATENT ATTORNEY - PROF. ENGINEER

## RATES

### CLASSIFIED—DISPLAY

One time—\$5.00 an inch  
Six times—\$4.50 an inch  
Twelve Times—\$4.00 an inch

### HELP WANTED • SITUATIONS WANTED

\$1.00 for 20 words or less;  
extra words, 5c each  
10c extra for box number

CASH WITH ORDER

## Machinery For Sale

### NEW AND REBUILT EQUIPMENT

★

We proudly serve many of America's leading industrial plants now engaged in producing the vital war materials so necessary to the success of our armed forces.

#### KILNS

★

#### COOLERS

★

#### DRYERS

★

#### CRUSHERS

*Inquiries invited: Consult us regarding your equipment problems. For prompt action, wire or phone.*

### WEBBER EQUIPMENT CO.

17 East Telephone New  
45th Street MU 2-6511 York

**Guaranteed Good  
REBUILT  
EQUIPMENT**

**Still  
Crushers  
Dryers  
Extractors  
Filters  
Pebble Mills  
Kettles  
Roller Mills  
Mixers  
Evaporators**

Complete equipment for the chemical, alcoholic, beverage, ceramic, drug, food products, oil and fat, process, rubber, soap, paint, varnish and all allied industries.

Every item shipped from our eight acre plant at 335 DOREMUS AVE., NEWARK, N. J., is thoroughly overhauled and rebuilt by our expert staff of mechanics.

*Send for latest issue of the Consolidated News listing hundreds of machinery values.*

**Consolidated Products Co., Inc.**

14-18 Park Row, New York, N. Y. Cable: Equipment  
We buy and sell from a single item to a complete plant

**LIQUIDATING  
TENNESSEE PHOSPHATE PLANT**  
Rotary Dryer, Tube Mill, Crusher, Dragline, Hammer Mills, Conveyors, Tanks, Elevators, Air Separators, Dust Collectors, Engines, Boilers, Pit Cars, Locomotive, etc.  
**SEND FOR ILLUSTRATED FOLDER.**  
**LOEB EQUIPMENT SUPPLY CO.**  
917 North Marshfield Ave., Chicago, Ill.

## SPECIALS!

- 1—Rotary Dryer, 6'x45', monel lined
- 1—Rotary Kiln, 6'x7'x100'
- 1—Raymond No. 1 Pulverizer, motor driven
- 15—Pebble Mills, one to 200 gals.
- 6—Tolhurst 32", 40", 48" Centrifugals
- 5—Sharples and DeLaval Centrifuges
- 3—Lead Lined Absorber Tanks, 6'6"x7'
- 1—Lead Lined Mixing Tank, 6'9"x6'4"
- 2—Glens Falls 20"x8' Sulphur Burners
- 2—Nash No. 4 Vacuum Pumps, motor driven
- 3—Copper Tanks, 2,000 and 2,500 gal.
- 12—Filter Presses, 18" to 36", iron, wood
- 10—Storage Tanks, 6,000 to 40,000 gal.

Partial list only. Send for complete bulletins.

**BRILL Equipment Co.**  
183 VARICK STREET NEW YORK

- 2—9 x 28 Louder Dryers.
- 6 x 50 Rotary Kiln
- Raymond No. 0 Automatic Pulverizer
- 59" x 78" 17-Shelf Vacuum Dryer
- 8—3 x 4 and 4 x 7 Hummer Screens
- 3 x 30, 3 1/2 x 24, 5 1/2 x 60 and 6 x 40 Direct Heat Dryers
- 1—36-Ton Fairbanks Tank Scale

#### STORAGE TANKS

- 14—10,000, 15,000, 20,000 and 26,000-gal. Cap. Horizontal and Vertical
- 1—5,000-bbl. and one 55,000 Oil Storage
- 100,000-gal. Cap. Tank on 80-ft. Tower
- 50,000-gal. Cap. Tank on 75-ft. Tower
- 35,000-gal. Tank on 75-ft. Tower
- 5—Underwriter's Fire Pumps, 750 and 1,000 G.P.M.

TIDEWATER EQUIPMENT & MACHINERY CORPORATION  
305 Madison Avenue New York, N. Y.

## CHOICE EQUIPMENT

STAINLESS STEEL Jacketed, 60 gal., agitated Autoclave, 750 lb. internal pressure.

CAST STEEL AUTOCLAVE, 550 gal., jacketed, agitated.

VALLEY Iron 5 1/2 gal. cast iron, jacketed, agitated Autoclave, 900 lbs. pressure.

BETHLEHEM-FREDERICKING Cast Iron Kettle, 7'x9'.

Cast Iron closed jacketed kettle, 6'-6"x8'-6".

SHARPLES No. 6 Super Centrifuge, motor driven.

SPERRY Cast Iron 36", 2 eye, closed delivery, Filter Press, 2" frames.

SHRIVER Filter Presses, cast iron, 7" to 24".

4—DEVINE 200 gal., agitated, closed cast iron kettles.

J. H. DAY 12"x32", 3 roll Water Cooled Mill, silent chain drive.

J. H. DAY & LEHMAN 16"x40", 3 roll Mills, Water Cooled, silent chain drive.

ABBE ENG. Jacketed, Porcelain Lined Pebble Mill, 4'-6"x3'-6".

4—Mixers and Sifters, 400 lb. to 600 lb. cap.

FLETCHER 40" bottom discharge, motor driven Centrifugal.

BUFLOVAK Vacuum Drum Dryer, 24"x20", complete.

Send for Bulletin "F"

### MACHINERY & EQUIPMENT CORPORATION

59 East 4th Street New York City

## Raw Material Wanted

### RAW MATERIALS WANTED

HIGHEST PRICES PAID FOR ANY QUANTITIES STANDARD, damaged or off-grade salicylic acid, acetylsalicylic acid, and any other salicylic derivatives including salicyrides. Indicate quantities and location of any quantities for immediate purchase. Box 1879, CHEMICAL INDUSTRIES.

## LIQUIDATING:

1—Lot of various sizes jacketed tanks.

Several various sizes jacketed and unjacketed mixers.

Address reply Box 1885  
Chemical Industries.

## Help Wanted

### Chief Chemurgic Chemist

Position as chief chemist open to man with mature experience in the formulation and manufacture of synthetics and alcohol fuel from farm products. Plant being located in one of finest cultured and most ideal cities in Kentucky, climatically neither too far south nor too far north, with equable seasons free from severe freezing spells, prolonged seasons of rain, wind or snow, free from heat prostrations and dampness where opportunities in this field are unlimited. This is an unusual opportunity for a chemist with the right technical qualifications and organizing ability. Plant to be ready about June 1st. Inquiries will be held in strict confidence. Reply: Box 1887 Chemical Industries

### SALESMEN!

**REBUILD WAR-REDUCED INCOMES!**  
If War Shortages, Winter Weather and Gasoline Rationing have decreased your sales, we suggest you write us. We are a leading industrial manufacturer whose nationally advertised products are used by many of the largest industrials, meet many critical shortages, and are rapidly expanding. Box 1888 Chemical Industries.

CHEMIST, preferably with dyestuff or intermediate plant experience for production and research work. Permanent position. Only 3A men considered. Give full details and salary desired. Box 1886 CHEMICAL INDUSTRIES.

## Situations Wanted

ACCOUNTANT, OFFICE MANAGER, reliable, 42, employed many years chemical field, largest concern, wishes executive position in New York City or vicinity. Box 1889 CHEMICAL INDUSTRIES.

## COPPER ACETATE

FREE FLOWING NON-DUSTING

For the manufacture of paint, varnish, and lacquer pigments; linoleum and oil cloth; inks; insecticides and fungicides; wallpaper; and as a mordant in the dyeing of furs and textiles.

## MANGANESE ACETATE

For the manufacture of paint and varnish driers; for mordants in textile and leather dyeing; and as a catalyst in various organic syntheses.

*Samples and further information on request.*

# NIACET

CHEMICALS CORPORATION

4702 Pine Ave.

Niagara Falls, N. Y.

# SULPHUR

## CRUDE 99½% PURE

Free from arsenic, selenium and tellurium

We respectfully solicit your inquiries

MINES—Clemens, Brazoria County, Texas.

**JEFFERSON LAKE SULPHUR CO., INC.**  
SUITE 1406-9, WHITNEY BLDG., NEW ORLEANS, LA.

# DRUMS

### ● Full removable head containers.

Where added strength and security are needed use our "Bolted Ring Seal" drum supplied in sizes from 10 to 70 gallons. Suitable for solids and semi-liquids. Consult us freely on your packaging problems. ●

a complete line of light gauge containers

**EASTERN STEEL BARREL CORPORATION**

BOUND BROOK NEW JERSEY

## Index to Advertisers

American British Chemical Supplies, Inc. ....	93
American Cyanamid & Chemical Corp. ....	6 and 7
American Flange & Mfg. Co., Inc. ....	Insert facing page 80
American Potash & Chemical Corp. ....	100
American Wax & Refining Corp. ....	95
Atlas Powder Company ....	18
Badger & Sons Co., E. B. ....	17
Bagpak, Inc. ....	19
Baker Chemical Co., J. T. ....	71
Barrett Division, The, Allied Chemical & Dye Corp. ....	97
Beacon Co., The ....	106
Becco Sales Company ....	104
Bemis Bro. Bag Co. ....	25
Berk & Co., F. W. ....	111
Blaw-Knox Division of Blaw-Knox Co. ....	9
Bower Chemical Mfg. Co., Henry ....	105
Brill Equipment Corp. ....	109
Burke, Ed. S. ....	101
Carbide & Carbon Chemicals Corp. ....	21
Chase Bag Co. ....	123
Church & Dwight, Inc. ....	93
Clafin, Alan A. ....	108
Clipper Manufacturing Co. ....	96
Commercial Solvents Corp. ....	Between pages 16 and 17
Consolidated Products Co., Inc. ....	108
Continental Can Co. ....	Insert facing page 64
C. P. Chemical Solvents, Inc. ....	108
Crown Can Co. ....	62
Diamond Alkali Co. ....	48
Dietert Co., Harry W. ....	95
Doe & Ingalls, Inc. ....	108
Dow Chemical Co. ....	Cover 1
Drew & Co., Inc., E. F., Wecoline Division ....	106
Dunkel & Co., Inc., Paul ....	83
Eastern Steel Barrel Corp. ....	110
Edwal Laboratories Inc., The ....	125
Fairmount Chemicals Co. ....	108
Fergusson Co., Alex. C. ....	108
Franks Chemical Products Co. ....	105
Freeport Sulphur Co. ....	104
General Ceramics Co. ....	12
General Chemical Co. ....	Cover 3
General Drug Company, Aromatics Division ....	105
Gray & Co., William S. ....	87
Greiff & Co., R. W. ....	102
Harshaw Chemical Co., The ....	103
Heekin Can Co. ....	102
Hercules Powder Co. ....	11
Heyden Chemical Corp. ....	15
Hooker Electro Chemical Co. ....	24
Hunt Chemical Works, Inc. ....	95
Industrial Chemical Sales, Div. West Virginia Pulp & Paper Co. ....	72
International Emulsifiers Co. ....	85
Jefferson Lake Sulphur Co., Inc. ....	110
Johnson & Son, Inc., S. C. ....	85
King & Co. Inc., E. & F. ....	108
LaPine & Co., Arthur S. ....	108
Loeb Equipment Supply Co. ....	109
Machinery & Equipment Corp. ....	109
Malmstrom & Co., N. I. ....	85
Mann & Co., Inc., Geo. ....	108
Marblehead Lime Co. ....	87
Marine Magnesium Products Corp. ....	99
Mathieson Alkali Works, Inc. ....	3
Merck & Co. ....	20
Meyer Drug Co., Inc., Herman ....	108
Mine and Smelter Supply Co., The ....	87
Molnar Laboratories ....	107
Monsanto Chemical Co. ....	41
Morgan & Co., Clarence ....	108
Mutual Chemical Co. of America, Inc. ....	5

## Index to Advertisers

National Aniline Div., Allied Chemical & Dye Corp. ....	10
National Oil Products Co. ....	14
Natural Products Refining Co. ....	26
Neuberg Company, William D. ....	103
Neville Company, The ....	103
Niacet Chemicals Corp. ....	110
Niagara Alkali Co. ....	Insert facing page 8
Oldbury Electro-Chemical Co. ....	98
Pacific Coast Borax Co. ....	98
Patterson Kelley Co., Inc. ....	56
Pennsylvania Coal Products Co. ....	99
Pennsylvania Salt Manufacturing Co. ....	16
Peters Chemical Mfg. Co. ....	108
Pfaltz & Bauer, Inc. ....	100
Pfizer & Co., Inc., Chas. ....	65
Philadelphia Quartz Co. ....	101
Phosphate Mining Co., ....	106
Polachek, Z. H. ....	108
Prior Chemical Corp. ....	66
Raymond Bag Co., ....	120
Reichhold Chemicals, Inc. ....	29
Reilly Tar & Chemical Corp. ....	102
Robinson Mfg. Co. ....	83
Rosenthal Co., H. H. ....	111
St. Regis Paper Bag Co. ....	Facing page 16
Schuylkill Chemical Co. ....	104
Sharples Chemicals, Inc. ....	69
Sherwood Refining Co., Inc. ....	101
Singer, T. E. R. ....	107
Snell, Inc., Foster D. ....	107
Solvay Sales Corp. ....	Cover 2
Sprout, Waldron & Company, Inc. ....	96
Standard Alcohol Co. ....	87
Standard Silicate Division, Diamond Alkali Co. ....	Facing page 17
Starkweather Co., J. U. ....	108
Stauffer Chemical Co. ....	13
Stroock & Wittenberg Corp. ....	91
Syntron Company ....	83
Tennessee Corp. ....	87
Texas Gulf Sulphur Co. ....	22
Tidewater Oil & Machinery Cor. ....	109
Titanium Alloy Manufacturing Company ....	23
Turner & Co., Joseph ....	91
Union Bag & Paper Corp. ....	45
Union Carbide & Carbon Corp. ....	21
U. S. Industrial Chemicals, Inc. ....	Insert facing pages 88 and 89
U. S. Potash Company ....	111
U. S. Stoneware Corp. ....	Insert facing Chem-O-Gram
Victor Chemical Works ....	47
Webber Equipment Co. ....	108
Westvaco Chlorine Products Corp. ....	1
Wishnick-Tumpeier, Inc. ....	Cover 4

CHEMICALS
DRUGS



**H. H. ROSENTHAL CO.**

25 EAST 26TH STREET NEW YORK

Cable address: Rodrug Tel. Ashland 4-7500

OILS
WAXES

ON THE LAND, ON THE SEA, AND IN THE AIR...


**mercury** ... PLAYS ITS PART!



Ask BERK for...

- PRIME VIRGIN MERCURY
- REDISTILLED MERCURY
- CORROSIVE SUBLIMATE
- WILSON'S MIXTURE BLUE
- MERCURY OXIDES (Yellow and Red)
- MERCURIC IODIDE RED
- MERCURIC NITRATE
- PHENYL MERCURY COMPOUNDS
- WHITE PRECIPITATE
- MERCURY CYANIDE
- CALOMEL

Wood Ridge Manufacturing Division  
**F.W. BERK & CO. INC.**  
WOOD RIDGE ... NEW JERSEY  
NEW YORK SAN FRANCISCO



REG. U. S. PAT. OFF.

**MURIATE OF POTASH**  
62/63% K<sub>2</sub>O, ALSO 50% K<sub>2</sub>O

**MANURE SALTS**  
22% K<sub>2</sub>O Minimum

**UNITED STATES POTASH COMPANY**  
INCORPORATED  
30 Rockefeller Plaza  
New York, N. Y.

## "WE"-EDITORIALLY SPEAKING

The following news item caught our attention in the daily newspaper a few days ago. "The Research Council on Problems of Alcohol, Pondfield Road West, Bronxville, N. Y., offers a \$1,000 prize for outstanding research on alcohol during 1943." We were just about to remark "What are we waiting for?" when our good eye read the balance of the item—"The winner must contribute new knowledge, in some branch of medicine, biology, or sociology, important to the understanding, prevention or treatment of alcoholism." Oh, well—let's skip it.



Just in case you still don't realize there is a war on the WPB lists curbs from A clear to Z. According to the headlines in the *N. Y. Times* A stands for the auto you cannot buy, C for the coffee now running dry, M for meat, a bit to eat, and Z for zoot suit that will ne'er be missed.



Our congratulations to Western Reserve in establishing a new course in technical sales leading to the degree of B.S. in Technical Sales. We hear a great deal these days about post-war planning. Here is a very practical application.



These so-and-so Japs are using natural rubber as a basic raw material for producing high-octane gasoline. It certainly is a pretty topsy-turvy world we are living in.



Usually no report other than the mere mention of the fact that the annual Christmas Party of the Chemical Sales-

### Priorities Allocations Price Controls

See the Statistical and Technical Data Section (Part 2 of this issue) for monthly digest of Government Regulations of Materials and Prices. Invaluable to you in your work.

men's Association has been held is given in this publication. This policy has always been based, we believe, on the sound reasoning that what the wives don't know or suspect won't cause any increase in the exodus to Reno. But this year it is all different. While the beefsteak tasted very much like the horsemeat that the "Little Flower" so vehemently denounced via one of his regular Sunday reports to the country on the state of the nation, we are happy to report that the floor show continued to attract the bald pate individuals, and we are particularly pleased to report that the services catering to the wants and needs of our armed forces were beneficiaries in a financial way—the actual amount quite a sizable one.



With the beginning of each new year it is customary to take inventory. We are no exception and we, therefore, give you readers a look into our projected Articles Folder. Here's what we have for you in the next few months.

*Polyvinyl Resins* by T. W. Stephenson of du Pont; *Utilization of Agricultural Wastes* by Robert Aries of the Connecticut Hard Rubber Co.; *Employee Training in Chemical Industries* by Walter von Pechmann; *Sulfur Dioxide* by Walter O. Walker of Ansul Chemical Company; *Coal—Our Most Abundant Raw Material* by the Coal Research Laboratory Staff of

### Fifteen Years Ago

(From our files of fifteen years ago)

"Chemical Industries" (Chemical Markets) becomes a monthly publication.

"Germany Perfects Synthetic Rubber Production Process"—is a lead news item.

Announcement is made of the formation of the Battelle Memorial Institute.

N. Emory Bartlett and Y. F. Harcastle elected vice-presidents of Penn. Salt.

Texas Gulf Sulphur purchases sulfur and surface rights on 240 acres adjoining tract now being prospected at Boling, Texas.

Federal Phosphorus sells its electrothermal process for producing phosphoric acid to Societe des Phosphates Tunisiens, Paris.

James McInnes, Jr., secretary, Seaboard Chemical Co., succeeds Edward S. Wright as sales manager. Mr. McInnes is now associated with Commercial Solvents.

Carnegie Institute of Technology; *Applications and Handling of Liquid and Solid Carbon Dioxide* by Chas. T. Longacre, manager, Carbon Dioxide division Mathieson Alkali Works; *Applications of the Nitroparaffins* by Walter Scheer of Commercial Solvents Corporation.



Advertising "stoppers" in the technical press:—

"What's in a Name"—American Cyanamid Company.

"The Light That Does Not Fail Our Fighting Men"—National Magnesium Corp.

"For Those Who Fight—For Those Who Work"—Texas Gulf Sulphur Company.

"Let's Cross This Bridge Before We Come To It"—United States Testing Co.

"On Every Front the Alloys That Fight for the Allies"—The Duriron Co.

"Production But Protection Too!"—Albi Chemical Corp.

"What Is It We've Got That Hitler Hasn't"—Colonial Beacon Oil Co.

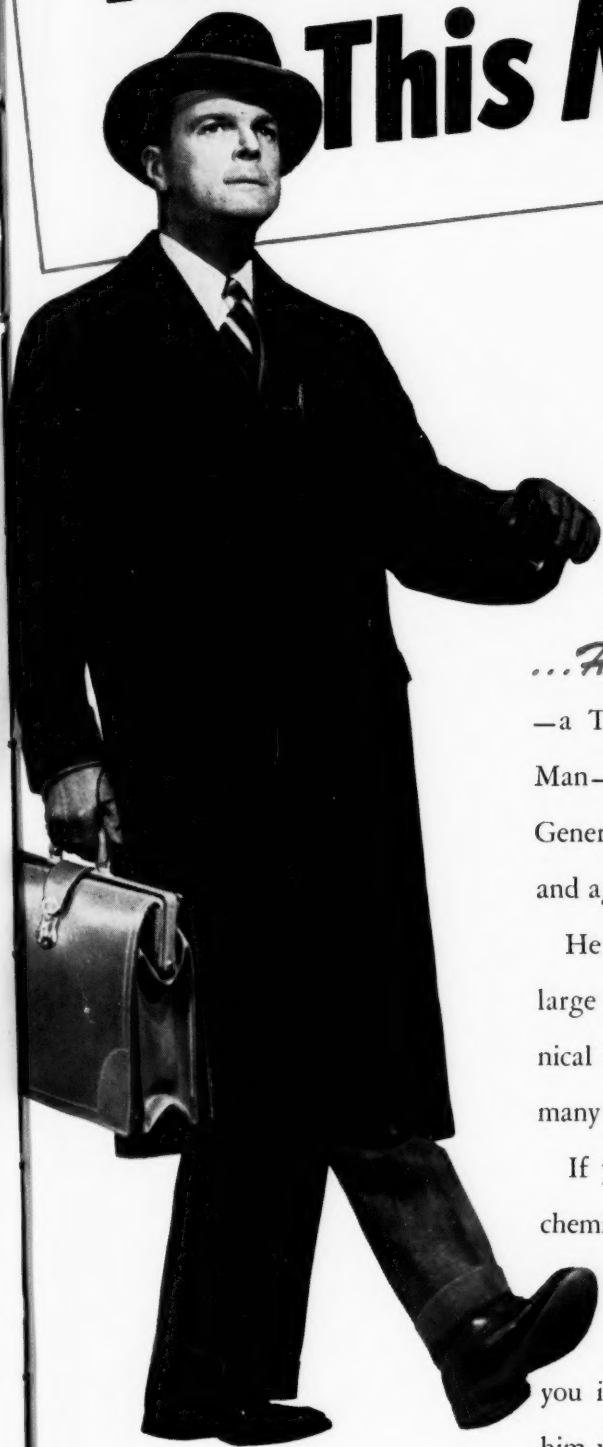
### Important -- Do You Bind Your Copies of CHEMICAL INDUSTRIES?

CHEMICAL INDUSTRIES has supplied in the past every subscriber with a very detailed Index covering, of course, all of the material appearing in the magazine in the preceding six-months period. Each volume of CHEMICAL INDUSTRIES consists of six monthly issues. The volume for the last half of each year also includes the BUYER'S GUIDEBOOK NUMBER.

Publishers are cooperating wholeheartedly with the

WPB order requesting that at least a saving of ten per cent in the amount of paper consumed in 1943 over that used in 1942 be placed in effect immediately. In this spirit of cooperation we have printed only a limited number of the Index covering Volume 51 (July-December, 1942). If you bind your issues, or for any reason desire a copy of the Index for Volume 51, please advise us immediately. *C'est la Guerre.*

# You Should Know This Man Well!



...He is the General Chemical representative—a Technical Service or Engineering Service Man—regularly working with consumers of General Chemical Company industrial, reagent and agricultural chemicals.

He can enlist the production facilities of a large organization and the knowledge of technical and engineering staffs, all built up over many years of operation.

If you have a problem involving the use of chemicals—call this man *today*. Discuss your needs and problems with him—he can offer valuable counsel. He will work with you in strictest confidence—and you will find him worthy of your closest cooperation.



## GENERAL CHEMICAL COMPANY

40 RECTOR STREET, NEW YORK, N. Y.

Technical Service Offices: Atlanta • Baltimore • Boston • Bridgeport (Conn.) • Buffalo • Charlotte (N. C.) • Chicago • Cleveland • Denver • Detroit • Houston • Kansas City • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • Providence (R. I.) • St. Louis • Utica (N. Y.)

Pacific Coast Technical Service Offices: San Francisco • Los Angeles

Pacific Northwest Technical Service Offices: Wenatchee (Wash.) • Yakima (Wash.)

In Canada: The Nichols Chemical Co., Ltd. • Montreal • Toronto • Vancouver

Here is how  
he is helping others.  
Perhaps he can help you!



### Handling of chemicals

He advises how to use many General Chemical products—such as Anhydrous Hydrofluoric Acid for the petroleum industry's alkylation process—so that hazards to men and valuable equipment may be minimized.



### War-time substitution

He shows the water, sewage and paper industries how "war-necessitated" Aluminum Sulfate can successfully replace previously available material.



### Increasing production

He introduces to the plating industry a new, concentrated lead plating solution—Lead Fluoborate solution. Significant savings in time and labor through the use of this material has won it rapid and widespread acceptance for plating bearings, batteries, etc.



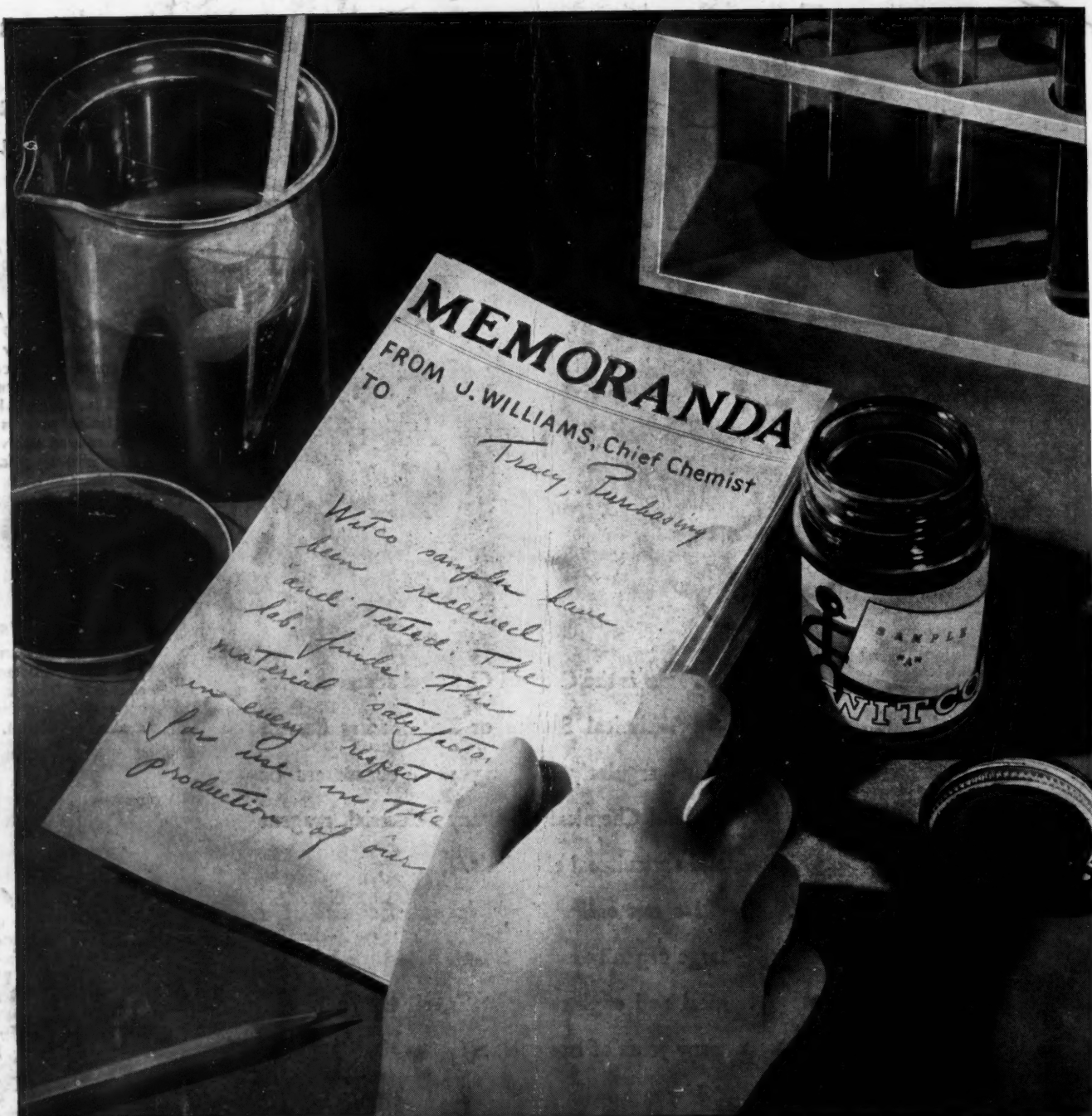
### Saving valuable metals

Paper and fibre cartons, properly treated with water-proofing, fire-resisting mixtures containing General Chemical Sodium Silicate, can be substituted in many applications for metal containers.



### Extending inventories

The soap industry has large but irreplaceable inventories of imported fats and oils. These precious supplies can be made to last longer by changing formulas slightly—but without changing product efficiency.



## HAVE YOU TRIED WITCO CARBON BLACK No. 12?

Witco Carbon Black No. 12 is the easy-processing black that offers special advantages in the production of heavy-duty tires made with either natural rubber or with reclaim formulations, since it gives an excellent combination of low heat generating qualities in the tire and good wear-resistance in the tread. Sev-

eral leading rubber companies are now using it as a near substitute for furnace type black with highly satisfactory results in tires that must stand up under extreme conditions of service. Witco Carbon Black No. 12 also offers interesting possibilities for use in Buna S formulations. Write today for samples.

### WISHNICK-TUMPEER, INC.

MANUFACTURERS AND EXPORTERS

New York, 295 Madison Avenue • Boston, 141 Milk Street • Chicago, Tribune Tower • Cleveland, 616 St. Clair Avenue, N.E. • Witco Affiliates: The Pioneer Asphalt Company • Panhandle Carbon Company  
Foreign Office, London, England



## TECHNOLOGY DEPT:

State of Chemical Trade  
Current Statistics (December 31, 1942)—p. 119

FEB 3 - 1943

## WEEKLY STATISTICS OF BUSINESS

Week Ending	Carloadings			Electrical Output*			Jour. of Com. Price Index	Nat'l Chem. & Drugs	Fertilizer Fats & Oils	Ass'n Fert. Mat.	Price Indices			Labor Dept. Chem. & Drug Price Index	Steel Ac-tivity	N. Y. Times Index	Fisher Corp. Bus. Index
	1942	1941	% of Change	1942	1941	% of Change					Mixed Fert.	All Groups					
Dec. 5 .....	759,621	833,375	-8.9	3,883,534	3,414,844	+13.7	104.9	127.6	148.8	117.5	115.3	130.6	99.6	98.3	133.7	108.5	
Dec. 12 .....	740,336	807,225	-8.3	3,937,524	3,475,919	+13.3	105.0	127.6	148.8	117.5	115.3	131.0	99.5	98.6	134.5	108.8	
Dec. 19 .....	742,911	798,868	-7.0	3,975,873	3,495,140	+13.8	105.2	127.6	148.8	117.5	115.3	131.7	99.5	98.4	135.5	109.1	
Dec. 26 .....	591,595	606,502	-2.5	3,655,926	3,234,128	+13.0	105.2	127.6	148.8	117.6	115.3	132.2	99.5	98.1	138.1	109.6	

## MONTHLY STATISTICS

CHEMICAL:	Oct. 1942	Oct. 1941	Sept. 1942	Sept. 1941	Aug. 1942	Aug. 1941
Acid, sulfuric (expressed as 50° Baumé, short tons, Bureau of the Census)						
Total prod. by fert. mfrs. ....	No Longer Available					
Consumpt. in mfr. fert. ....						
Stocks end of month .....						

Alcohol, Industrial (Bureau Internal Revenue)						
Ethyl alcohol prod., proof gal. ....	No Longer Available					
Comp. denat. prod., wine gal. ....						
Removed, wine gal. ....						
Stocks end of mo., wine gal. ....						
Spec. denat. prod., wine gal. ....						
Removed, wine gal. ....						
Stocks end of mo., wine gal. ....						

Ammonia sulfate prod., tons a. ....	No Longer Available					
Benzol prod., gal. b. ....	No Longer Available					
Byproducts coke, prod., tons a. ....						

Cellulose Plastic Products (Bureau of the Census)						
Nitrocellulose sheets, prod., lbs. ....						
Sheets, ship., lbs. ....						
Rods, prod., lbs. ....						
Rods, ship., lbs. ....						
Tubes, prod., lbs. ....						
Tubes, ship., lbs. ....						
Cellulose acetate, sheets, rods, tubes						
Production, lbs. ....						
Shipments, lbs. ....						
Molding comp., ship.; lbs. ....						

Methanol (Bureau of the Census)						
Production, crude, gals. ....	No Longer Available					
Production, synthetic, gals. ....						

Pyroxylin-Coated Textiles (Bureau of the Census)						
Light goods, ship., linear yds. ....	2,806,551	4,285,874	2,607,510		2,775,381	4,357,029
Heavy goods, ship., linear yds. ....	2,080,092	3,555,574	2,009,628		1,872,926	3,345,544
Pyroxylin spreads, lbs. c. ....	4,564,668	7,288,494	4,766,437		4,202,140	7,142,042

Exports (Bureau of Foreign & Dom. Commerce)						
Chemicals and related prod. d. ....	Exports and Imports	No Longer Available				
Crude sulfur d. ....						
Coal-tar chemicals d. ....						
Industrial chemicals d. ....						
Imports						
Chemicals and related prod. d. ....						
Coal-tar chemicals d. ....						
Industrial chemicals d. ....						

Employment (U. S. Dept. of Labor, 3 year av., 1923-25=100) Adjusted to 1937 Census Totals						
Chemicals and allied prod., including petroleum ....			163.4	147.6	159.9	143.1
Other than petroleum ....			170.6	152.5	166.0	146.7
Chemicals ....			193.2	182.4	194.4	180.1
Explosives ....			No Longer Available			

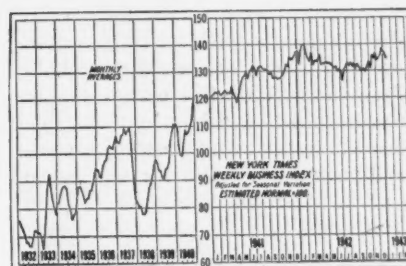
Payrolls (U. S. Dept. of Labor, 3 year av., 1923-25=100) Adjusted to 1937 Census Totals						
Chemicals and allied prod., including petroleum ....			246.0	183.5	237.4	181.5
Other than petroleum ....			260.6	195.4	252.2	188.4
Chemicals ....			307.4	250.9	309.1	247.2
Explosives ....			No Longer Available			

Price index chemicals* ....	96.2	88.4	96.3	96.5	96.3	96.5
Drugs & Pharmaceuticals* ...	128.8	124.1	128.9	129.1	129.0	129.1
Fert. mat.* ....	78.3	77.3	78.2	78.5	78.3	78.4
Paint and paint mat. ....	101.0	96.0	100.4	100.7	100.1	100.3

## FERTILIZER:

Exports (long tons, Nat. Fert. Association)						
Fertilizer and fert. materials ..	Exports and Imports	No Longer Available				
Total phosphate rock ....						
Total potash fertilizers ....						
Imports (long tons, Nat. Fert. Association)						
Fertilizer and fert. materials ..						
Sodium nitrate ....						
Total potash fertilizer ....						

## INDUSTRIAL TRENDS



Business: During 1942 American industry met successfully the problems of conversion from a peace-time to a war economy. Great strides were made in production of supplies for war and in building facilities for further production. These added facilities should continue to accelerate war production to make 1943 the peak year of the war. In the midst of concentration on the war effort civilian supplies and non-essentials will continue to decline.

Aggregate industrial production according to the Federal Reserve Board increased in November when the seasonal tendency is downward. The "New York Times" index of business activity increased from 133.7 for week ending Dec. 5 to 138.1 for week ending Dec. 26.

Steel: During 1942 the steel industry established a new record output of 86,092,209 net tons of steel ingots and castings according to the American Iron & Steel Institute. This total exceeds the previous record of 82,836,946 tons in 1941 by 3,255,263 tons or almost 4 per cent. Output in the second half of the year totaled nearly a million tons more than production in the first half of the year.

Production during December, 1942, amounted to 7,303,179 tons, compared with 7,184,560 during November and 7,150,315 during December, 1941.

It is expected that steel production will be pushed still higher during the coming months and may end the year 1943 with a 5 per cent gain over 1942.

Carloadings: The association of American Railroads reports that 42,-818,739 cars were loaded during 1942. This represents an increase of 528,975 cars or 1.3 per cent over 1941. Actually, however, traffic was 33 per cent greater because cars were loaded more

## State of Chemical Trade

Current Statistics (December 31, 1942)—p. 120

heavily and hauled longer distances. Volume handled by the carriers, amounted to 630,000,000,000 ton-miles, an increase of 155,000,000,000 ton-miles over 1941.

Loadings in the first quarter of 1943 are expected to be between 3 and 4 per cent above loadings in the same quarter of 1942.

**Electrical Output:** Production of electrical energy during the four weeks beginning Dec. 7 amounted to 15,452,857 an increase of 13.4 per cent over the corresponding weeks in 1941.

For the twelve months ended November 30, total production for public use was 183,706,468,000 kilowatt-hours, up 12.7 per cent from the preceding twelve months.

Capacity of generating plants in service in the United States November 30 was listed as 46,409,115 kilowatts, a net increase of 299,068 above October 31 capacity.

Electric utility power plants in November consumed 5,572,480 tons of bituminous coal, down 3.7 per cent from October, and 221,652 tons of anthracite, down 10.4 per cent. The plants' coal stocks December 1 were the highest in history, up 59.8 per cent from December 1, 1941, the commission said.

**Construction:** According to the F. W. Dodge Corp., construction volume reached an all-time high in 1942. The year's total was about 30 to 35 per cent greater than that of 1941 and approximately 20 per cent greater than that of the previous record of 1928.

**Retail Trade:** Distribution of commodities to consumers increased further in November and December with active Christmas buying. At department stores, variety stores and mail order houses serving rural areas, sales in November expanded more than seasonally. In the first half of December department store sales continued to rise sharply and were considerably larger than a year ago.

**Commodity Prices:** According to the Federal Reserve Board, grain prices advanced from the middle of November to the middle of December, while most other wholesale commodity prices showed little change.

Retail food prices increased by 1 per cent in the five weeks ending November 17th to a level 16 per cent higher than in November 1941. Prices of uncontrolled foods showed the largest advances from October to November but price increases in controlled items contributed about two-fifths of the total rise.

## MONTHLY STATISTICS (cont'd)

FERTILIZER, (Cont'd)	Oct. 1942	Oct. 1941	Sept. 1942	Sept. 1941	Aug. 1942	Aug. 1941
<i>Superphosphate s (Nat. Fert. Association)</i>						
Production, total .....	.....	.....	.....	.....	413,396	334,636
Shipments, total .....	.....	.....	.....	.....	373,196	223,973
Northern area .....	.....	.....	.....	.....	249,914	127,262
Southern area .....	.....	.....	.....	.....	123,282	96,716
Stocks, end of month, total ..	.....	.....	.....	.....	1,212,490	1,222,183
<i>Tag Sales (short tons, Nat. Fert. Association)</i>						
Total, 17 states .....	.....	.....	231,427	204,039	212,233	180,437
Total, 12 southern .....	.....	.....	176,033	135,239	66,054	71,662
Total, 5 midwest .....	.....	.....	61,394	68,800	146,184	108,775
Fertilizer employment i .....	.....	.....	110.0	110.2	97.5	89.6
Fertilizer payrolls i .....	.....	.....	137.3	111.6	121.0	90.8

## GENERAL:

Acceptances outst'd/g f .....	.....	.....	.....	.....	.....	.....
Coal prod., anthracite, tons ..	.....	.....	.....	.....	.....	.....
Coal prod., bituminous, tons...	.....	.....	.....	.....	.....	.....
Comm. paper outst'd/g f .....	.....	.....	.....	.....	.....	.....
Failures, Dun & Bradstreet ..	.....	.....	.....	.....	.....	.....
Factory payrolls i .....	.....	.....	220.5	162.6	214.7	133.1
Factory employment i .....	.....	.....	148.2	135.2	145.9	158.1

## GENERAL MANUFACTURING:

Automotive production .....	No Longer Available	.....	.....	.....	.....	.....
Boot and shoe prod., pairs ....	39,823,292	45,704,342	38,586,091	45,464,736	38,586,091	45,464,736
Bldg. contracts, Dodge i .....	.....	.....	.....	.....	.....	.....
Newsprint prod., U. S. tons ...	.....	.....	77,962	78,657	.....	83,592
Newsprint prod., Canada, tons.	.....	.....	257,618	298,276	.....	293,054
Glass containers, gross† .....	.....	.....	.....	.....	6,584	6,791
Plate glass prod., sq. ft. ....	.....	.....	4,742,000	14,905,000	3,863,000	14,125,000
Window glass prod., boxes ....	.....	.....	.....	.....	1,075,343	1,267,472
Steel ingots prod., tons .....	7,584,864	7,236,068	7,067,084	6,811,754	7,233,451	6,997,496
% steel capacity .....	100.1	98.9	96.5	96.3	95.4	95.6
Pig iron prod., tons .....	No Longer Available	.....	.....	.....	.....	.....
U.S. cons'pt. crude rub., lg. tons	No Longer Available	.....	.....	.....	.....	.....
Tire shipments .....	No Longer Available	.....	.....	.....	.....	.....
Tire production .....	No Longer Available	.....	.....	.....	.....	.....
Tire inventories .....	No Longer Available	.....	.....	.....	.....	.....
Cotton consumpt., bales .....	972,490	955,657	966,149	877,971	925,069	872,035
Cotton spindles oper. ....	.....	.....	22,956,224	22,977,528	22,973,572	23,029,066
Wool consumption s .....	.....	.....	48.4	58.6	49.9	53.5
Rayon deliv., lbs. ....	53,700,000	41,700,000	38,400,000	37,000,000	38,100,000	37,300,000
Rayon employment i .....	.....	.....	310.6	327.0	307.3	329.3
Rayon payrolls i .....	.....	.....	402.5	374.3	400.4	368.2
Soap employment i .....	.....	.....	84.7	98.2	81.6	97.4
Soap payrolls i .....	.....	.....	134.1	139.6	125.5	83.4
Paper and pulp employment i..	.....	.....	118.8	128.4	119.5	127.8
Paper and pulp payrolls i .....	.....	.....	163.6	163.0	165.1	121.5
Leather employment i .....	.....	.....	88.8	97.0	88.3	94.8
Leather payrolls i .....	.....	.....	117.3	114.2	116.7	109.0
Glass employment i .....	.....	.....	119.1	130.3	117.9	130.0
Glass payrolls i .....	.....	.....	151.9	160.5	157.3	155.4
Rubber prod. employment i ...	.....	.....	107.4	111.5	105.1	111.3
Rubber prod. payrolls i .....	.....	.....	157.6	134.8	154.0	138.8
Dyeing and fin. employment i .	.....	.....	129.2	136.0	127.1	136.3
Dyeing and fin. payrolls i .....	.....	.....	151.4	135.7	148.3	132.5

## MISCELLANEOUS:

Gasoline prod., p .....	.....	.....	.....	.....	.....	.....
Cottonseed oil consumpt., bbls.	.....	.....	.....	.....	.....	.....

## PAINT, VARNISH, LACQUER, FILLERS:

Sales 680 establishments, dollars	\$44,121,665	\$51,138,488	\$43,027,934	\$50,363,488	\$41,105,740	\$48,646,514
Trade sales (580 estabts.) dollars	\$21,279,899	\$24,724,475	\$20,539,579	\$25,624,958	\$20,187,334	\$23,893,291
Industrial sales, total, dollars..	\$17,906,344	\$21,453,623	\$17,242,815	\$19,799,134	\$16,748,036	\$20,246,764
Paint & Varnish, employ. i ...	.....	.....	125.6	148.9	125.6	144.8
Paint & Varnish, payrolls i ....	.....	.....	163.6	169.9	162.8	171.5

a Bureau of Mines; b Crude and refined plus motor benzol, Bureau of Mines; c Based on 1 lb. of gun cotton to 7 lbs. of solvent, making an 8-lb. jelly; d 000 omitted, Bureau of Foreign & Domestic Commerce; e Expressed in equivalent tons of 16% A.P.A.; f 000,000 omitted at end of month; i U. S. Dept. of Labor, 3 year average, 1923-25 = 100, adjusted to 1937 Census totals; j 000 omitted, 37 states; k Thousands of barrels, 42 gallons each; l 680 establishments, Bureau of the Census; m Classified sales, 580 establishments, Bureau of the Census; n 53 manufacturers, Bureau of the Census, in millions of lbs.; o 387 identical manufacturers, Bureau of the Census, quantity expressed in dozen pairs; p In thousands of bbls., Bureau of the Census; q Indices, Survey of Current Business, U. S. Dept. of Commerce; r Units are millions of lbs.; s 000 omitted; \* New series beginning March, 1940.

Chemical Finances  
December, 1942—p. 120

## Dow Net \$2,147,705

The consolidated net income of The Dow Chemical Company and subsidiaries for the three months ended August 31, 1942, was \$2,147,705.47 which, after providing for dividends on the outstanding preferred stock, was equivalent to \$1.66 per share on the common stock outstanding. The net income was arrived at after providing for the three months charge for amortization of completed facilities covered by certificates of necessity and for Federal normal income taxes, surtaxes, and excess profits taxes at an effective rate of tax computed upon the basis of estimated taxable income for the Company's fiscal year ending May 31, 1943.

Included in income for the three months ended August 31, 1942, were dividends of \$100,000.00 received from an associated company.

Air Reduction Earns \$.80  
A Share

Air Reduction Co., Inc., and wholly-owned subsidiaries in report for the quarter ended September 30, 1942, subject to audit and year-end adjustments, show a net profit of \$2,176,013 after depreciation and provision of \$3,345,597 for federal income and excess profits taxes, equal to 80 cents a share on the 2,713,337 common shares outstanding at the close of the period. The above net includes a credit adjustment of \$434,485 in the third quarter for excess federal tax provision made in the six months ended June 30, 1942, prior to enactment of the new revenue bill. Exclusive of this credit adjustment, net income was \$1,741,528, or 64 cents a share.

This compares with a net profit for the quarter ended September 30, 1941, after provision of \$2,036,434 for federal taxes, of \$1,897,045, equal to 70 cents a share on the 2,715,137 shares outstanding at the close of that period.

Commercial Solvents Nets  
\$527,016

Commercial Solvents Corp. reports for the quarter ended September 30, 1942, a

consolidated net profit of \$527,016 after charges and provision of \$1,693,500 for federal income and excess profits taxes, based on Revenue Act of 1942, but without consideration of post-war credit on excess profits tax. The above net is equal to 20 cents a share on 2,636,878 shares of capital stock.

This compares with a net profit for the quarter ended September 30, 1941, after provision of \$740,426 for federal taxes, of \$732,504, equal to 28 cents a share, and with a net profit for the quarter ended June 30, 1942, after provision of \$2,029,300 for federal taxes, of \$596,730, equal to 22 cents a share.

## Vick Net Up

Vick Chemical Co. and subsidiaries report for the quarter ended September 30, 1942, a net profit of \$1,335,689 after depreciation, reserve for undetermined losses attributable to prevailing war conditions and provision of \$1,198,665 for federal, state and foreign income and excess profits taxes. The above net is equal to \$1.96 a share on the 681,180 shares of capital stock.

This compares with a net profit of \$1,082,468 or \$1.58 a share on 685,780 shares in the like 1941 quarter.

## United Carbon Pays \$3.23

United Carbon Co. and subsidiaries in a report for the nine months ended September 30, 1942, show a net profit of \$1,285,842 after depreciation, depletion, minority interest, federal income and excess profits taxes, etc., equal to \$3.23 a share on 397,885 shares of capital stock.

This compares with a net profit of \$1,214,551, or \$3.05 a share for the nine months ended September 30, 1941.

Provision for federal income taxes for the first nine months of 1942, based on the Revenue Act of 1942, amounted to \$636,000 and excess profits taxes aggregated \$550,000 against \$575,000 and \$310,000, respectively, in the first nine months of 1941.

Current assets of September 30, 1942, including \$1,722,000 cash, amounted to \$4,752,200 and current liabilities were

## Dividends and Dates

Name	Per Share	Stock Record	Payable
Air Reduction Co.			
(quar.)	.25	12-31	1-15
Extra	.25	12-31	1-15
Carborundum Co.	1.00	12-22	12-26
Commercial Alcohols, Ltd., common	.05	12-31	1-15
8% pfd. (quar.)	.10	12-31	1-15
Distillers Corp.—Seagram's, Ltd.—5% pfd. (quar.) (payable in U. S. funds)	1.25	1-15	2-1
Dow Chemical Co. common	.75	2-1	2-15
5% pfd. (quar.)	1.25	2-1	2-15
General Foods Corp., \$4.50 pfd. (quar.)	1.125	1-1	2-1
General Mills, Inc. (quar.)	1.00	1-8	2-1
Harbison-Walker Refractories 6% pfd. (quar.)	1.50	1-6	1-20
Hercules Powder Co., 6% pfd. (quar.)	1.50	2-4	2-15
Liquid Carbonic (quar.)	.25	12-14	1-4
Extra	.25	12-14	1-4
4½% pfd. A (quar.)	1.125	1-15	2-1
National Distillers Products (quar.)	.50	1-15	2-1
Procter & Gamble Co. 8% pfd. (quar.)	2.00	12-24	1-15
Quaker Oats Co., 6% pfd. (quar.)	1.50	2-1	2-27
Standard Brands, Inc. com. (resumed)	.10	12-30	2-1
\$4.50 pfd. (quar.)	1.125	3-1	3-15
Standard Oil Co. (Ohio) 5% pfd. (quar.)	1.25	12-31	1-15
Union Oil of California (quar.)	.25	1-9	2-10
U. S. Industrial Alcohol (quar.)	.25	1-15	2-1
Extra	.25	1-15	2-1

\$985,706. This compares with cash of \$1,207,214, current assets of \$3,665,427 and current liabilities of \$1,271,841 on September 30, 1941.

Canadian Industrial Alcohol  
Nets \$554,860

Canadian Industrial Alcohol Co., Ltd. in report for fiscal year ended August 31, 1942, shows net profit of \$554,860 after depreciation, income and excess profits taxes of \$556,879 and contingent reserve of \$100,000. Above net is equal to 50 cents a share on 1,111,916 shares of the combined voting and non-voting capital stock.

This compares with net profit of \$383,658 or 35 cents a share in preceding year, when taxes were \$456,652 and no provision was made for contingent reserve.

Abbott Reports  
Profit of \$1,419,763

Abbott Laboratories in a report for the nine months ended September 30, 1942, subject to audit and year-end adjustments, shows a net profit of \$1,419,763 after charges and provision for federal income and excess profits taxes on the basis of the 1942 revenue act. The above net is equal after dividend requirements on the 4% preferred stock, to \$1.76 per share on the 755,456 shares of common stock.

This compares with a revised net profit of \$1,733,025 or \$2.24 a common share for corresponding period of 1941, after provision for dividend requirements on the 4½% preferred stock then outstanding.

## Price Trend of Representative Chemical Company Stocks

	Dec. 5	Dec. 12	Dec. 19	Dec. 26	Net gain or loss last mo.	Price on Dec. 27, 1941	High	Low
Air Reduction Co.	37½	38½	40½	41½	+ 4½	36½	41½	29½
Allied Chemical & Dye Corp.	135¼	139½	141½	143	+ 7¼	140	149	118½
Amer. Agric. Chem.	23½	23½	23½	23	- ½	21½	24	18½
Amer. Cyanamid "B"	35½	36½	37½	39	+ 3½	41	28½	41½
Columbian Carbon	75½	79	81	83	+ 7½	66½	84½	51
Commercial Solvents	9½	9	9½	9½	+ ½	7½	10½	7½
Dow Chemical Co.	126¼	128	132¼	134	+ 7¼	123	134½	95
du Pont	130½	130½	134¼	136¼	+ 5¼	140½	144	102¼
Hercules Powder	70½	71	73½	75	+ 4½	69	75½	51
Mathieson Alkali Works	21½	21½	22½	21½	+ ¾	26¼	29½	19½
Monsanto	81¼	85½	88½	88½	+ 7	87½	91	66
Standard Oil of N. J.	44	44½	45½	47	+ 3	42	47	30½
Texas Gulf Sulphur	36¼	35¼	36½	36¼	+ ½	31½	37½	28
Union Carbide & Carbon	76¼	77½	80	82¼	+ 6	69¼	83	58
United Carbon Co.	55¼	58	57½	57½	+ 1½	36	58½	37
U. S. Industrial Alcohol	29½	30	30¼	29	- ½	29	34½	24½

Chemical Finances  
December, 1942—p. 121

## Chemical Stocks and Bonds

PRICE RANGE							Stocks	Par \$	Shares Listed	Dividends 1942	Earnings**			
1942		1941		1940		\$-per-share-					1941	1940	1939	
December Last	High	Low	High	Low	High									Low
NEW YORK STOCK EXCHANGE														
51½	51½	37	46½	40	70½	46½	Abbott Labs. ....	No	755,204	1.60*	2.90	2.89	2.61	
39½	41½	29½	45	34½	55½	36½	Air Reduction ....	No	2,736,855	1.00*	2.63	2.38	1.98	
145	149	118½	167½	135	183	124½	Allied Chem. & Dye ....	No	2,401,288	6.00*	9.67	9.43	9.58	
23	24	18½	22½	14½	21	12½	Amer. Agric. Chem. ....	No	627,981	1.20*	1.79	1.45	1.22	
35½	36	27½	35	26	35½	23	Archer-Dan.-Midland ....	No	545,416	2.00	5.69	5.42	3.02	
53½	43	70	77½	61	80½	57	Atlas Powder Co. ....	No	254,827	3.50	6.13	5.71	3.82	
113½	111	116	121	111	134½	113½	5% conv. cum. pfd. ....	100	68,597	5.00	27.77	26.01	18.94	
28½	29½	15	30½	18½	35½	20	Calanese Corp. Amer. ....	No	1,379,551	2.00	3.43	2.90	3.53	
119	120½	110	122½	110½	131	104½	prior pfd. ....	100	164,818	7.00	25.08	23.69	23.67	
167½	17½	11½	16½	10½	20	10½	Colgate-Palm.-Peet ....	No	1,962,087	0.50*	3.09	1.62	2.74	
84½	51	84½	83	64	99½	71	Columbian Carbon ....	No	537,406	4.25	6.57	5.71	5.32	
9½	10½	7½	11½	7½	106	8	Commercial Solvents ....	No	2,636,878	0.60	.99	.91	.61	
55½	58	42½	55½	43½	65½	40½	Corn Products ....	25	2,530,000	2.60	3.37	3.10	3.32	
176	159	179	182½	164	184	166	7% cum. pfd. ....	100	245,738	7.00	41.78	7.23	7.70	
18	14	21	21	19½	171	127½	Devco & Rayn. A. ....	No	95,000	1.00	7.08	1.14	2.08	
133	95	134½	141½	111½	171	127½	Dow Chemical ....	No	1,135,187	3.00	6.58	6.65	3.76	
134½	102½	144	164½	136½	180½	146½	DuPont de Nemours ....	20	11,065,763	4.25	7.50	7.23	7.70	
126	120	127	127	120½	129½	114	4½% pfd. ....	No	1,688,850	4.50	53.53	51.48	52.25	
149½	151½	108	145½	120½	166½	117	Eastman Kodak ....	No	2,438,242	5.00	8.57	7.96	8.55	
178½	170	180	182½	160	188	155	6% cum. ....	100	61,657	6.00	350.14	325.62	337.65	
35½	38½	27	41	33½	99½	34½	Freeport Sulphur ....	10	796,380	2.00	3.95	3.81	2.76	
4½	5½	3½	7½	4½	10	5½	Gen. Printing Ink ....	1	735,960	0.30	1.00	.86	.94	
14½	16	12½	17½	11	19½	11	Glidden Co. ....	No	829,989	1.10	3.08	1.56	1.70	
42	37½	44	46	35	45	30	4½% cum. pfd. ....	50	199,940	2.25	15.08	8.64	9.27	
94½	94½	79½	96	76	113½	80½	Hazel Atlas ....	25	434,409	5.00	6.63	5.98	6.60	
74	75½	51	80½	65½	106½	69	Hercules Powder ....	No	1,318,710	2.50	4.23	4.01	3.66	
131½	134	125	132½	123½	139½	130½	6% cum. pfd. ....	100	96,194	6.00	69.71	66.38	60.87	
34½	35	21	39½	20½	29	16½	Industrial Rayon ....	No	759,325	2.00*	3.04	3.51	1.77	
22½	18½	23½	37	19	47½	21½	Interchem. ....	No	290,320	1.60	6.01	2.47	4.10	
107	100½	111½	118½	107	118	91	6% pfd. ....	100	65,661	6.00	32.79	16.99	24.27	
11½	12½	3½	..	..	..	..	Intern. Min. & Ch. ....	5	473,981	0.50	..	..	..	
55	57	38	..	..	..	..	4% cum. pfd. ....	100	100,000	4.00	..	..	..	
29	30½	24½	31½	23	35½	19½	Intern. Nickel ....	No	14,594,025	2.00	2.22	2.30	2.39	
40½	39	48½	49	38½	39½	20½	Intern. Salt ....	No	240,000	2.00	3.76	3.98	1.92	
23	24	17½	23	17½	29½	14½	Kellogg (Spencer) ....	No	509,213	1.90	3.66	2.74	1.30	
32½	33½	20½	45½	19½	35½	30	Libbey Owens Ford ....	No	2,513,258	1.00	3.52	3.97	3.21	
15½	16½	11½	16½	13	18½	10½	Liquid Carbonic ....	No	728,100	1.00*	2.92	2.21	1.62	
21	29½	19½	31½	24½	32½	21	Mathieson Alkali ....	No	823,171	1.125	1.90	1.72	1.13	
86½	91	66	94	77	119	79	Monsanto Chem. ....	No	1,241,816	2.25	4.90	4.32	4.01	
115	110	117½	118½	112	119	110	4½% pfd. A. ....	No	50,000	4.50	38.43	57.38	54.29	
118	112	120	123	115	128	113½	4½% pfd. B. ....	No	50,000	4.50	38.43	57.38	54.29	
109	110½	102½	112½	103½	..	..	4% pfd. C. ....	No	50,000	4.00	38.43	..	..	
13½	16½	11½	19½	12½	25½	14½	National Lead ....	10	3,090,664	0.50	1.10	1.34	1.23	
160	145	168	170	100½	176	160	7% cum. "A" pfd. ....	100	213,793	7.00	24.68	28.54	27.04	
139	129	146	154	138	189½	132	6% cum. "B" pfd. ....	100	103,277	6.00	49.99	59.46	55.30	
34½	29½	36	30	26	44	29½	National Oil Products ....	4	179,829	1.00	4.11	3.92	3.89	
10½	11½	7½	11½	6½	14½	6½	Newport Industries ....	1	621,359	0.50	1.14	0.50	0.64	
57½	57½	43½	54	38½	64½	43	Owens-Illinois Glass ....	12.50	2,661,204	2.00	3.40	2.71	3.17	
49	52½	42	61½	47½	71½	53	Procter & Gamble ....	No	6,409,418	2.00	4.20	4.37	3.80	
120½	115	122	120	118	118½	112½	5% pfd. ....	100	169,517	5.00	324.38	336.78	298.55	
18½	18½	10½	16½	10½	18½	7½	Shell Union Oil ....	No	13,070,635	1.00	1.33	1.05	0.77	
30½	30½	19½	35½	18½	35½	12½	Skelly Oil ....	No	981,349	1.25	6.03	3.28	1.99	
28½	29	20	34½	24½	39	20½	S. O. Indiana ....	25	15,273,020	1.00*	3.17	2.20	2.24	
46½	47	30½	46½	33	46½	20½	S. O. New Jersey ....	25	27,278,666	1.00*	5.15	4.54	3.27	
9	9½	7½	9½	6	9½	4½	Tenn. Corp. ....	5	853,696	1.00	1.60	1.36	0.41	
41½	42½	30	46½	34½	47½	33	Texas Corp. ....	25	10,876,882	2.00	4.77	2.90	2.02	
37	37½	28	38½	30½	37½	26½	Texas Gulf Sulphur ....	No	3,840,000	2.00*	2.35	2.38	2.04	
81	83	58	70½	60	80½	50½	Union Carbide & Carbon ..	No	9,277,288	3.00	4.53	4.55	3.86	
56	58½	37	83	35	96½	47½	United Carbon ....	No	307,885	3.00	4.30	3.36	3.81	
30½	24½	34½	34½	30	38	14	U. S. Indus. Alcohol ....	No	291,238	1.00*	..	2.73	1.06	
15½	20½	14½	34½	18½	48½	25	Vanadium Corp. Amer. ....	No	405,706	0.25	2.03	2.85	3.25	
24½	18½	25½	37½	30	31½	14	Victor Chem. ....	5	750,000	1.10	1.59	1.57	1.59	
2	27½	1	3½	¾	4½	1½	Virginia-Caro. Chem. ....	No	486,122	..	-1.89	-1.36	-1.57	
38½	40½	22½	39½	29½	31½	14	6% cum. part. pfd. ....	100	213,052	5.00	1.69	2.89	2.41	
25½	22	31½	26½	37½	38½	27½	Westvaco Chlorine ....	No	553,132	1.40	2.92	2.96	2.91	
108	100½	108½	112	105	160½	106	cum. pfd. ....	No	58,418	4.50	22.19	21.98	..	
NEW YORK STOCK EXCHANGE														
39½	41½	28½	43½	31	39½	26	Amer. Cyanamid "B" ....	10	2,618,387	0.60*	2.42	2.44	2.67	
7½	6½	9	7½	6½	8½	6	Duval Texas Sulphur ....	No	500,000	2.00	1.42	1.16	1.25	
76	88½	65	99	65	92	80	Heyden Chem. Corp. ....	100	104,983	3.00	9.04	7.86	8.98	
85½	86½	55½	96½	55	104	65	Pittsburgh Plate Glass ....	25	2,188,040	3.50	6.82	6.30	4.94	
84	59½	84½	84	61	100	62½	Sherwin Williams ....	25	638,927	3.00	7.83	6.57	5.96	
112½	110	115	115½	108½	114½	106	5% cum. pfd. ....	50	122,289	5.00	47.83	39.49	35.08	
PHILADELPHIA STOCK EXCHANGE														
149	175½	125	185	163	192	158½	Pennsylvania Salt ....	80	180,000	6.75	10.99	11.51	8.63	

PRICE RANGE							Bonds	Date Due	Int. %	Int. Period	Out-standing \$
1942		1941		1940							
December Last	High	Low	High	Low	High	Low					
NEW YORK STOCK EXCHANGE											
104½	104½	101½	104½	100½	105½	100½	Amer. I. G. Chem. Conv. ....	1949	5½	M-N	\$22,400,000
51½	34	55½	42½	26½	41	27½	Anglo Chilean Nitrate inc. deb. ....	1967	4½	J	10,400,000
53	35	57	40	25½	30½	27	Lauraro Nitrate inc. deb. ....	1975	4	J-D	27,200,000
98½	98½	95½	99½	94½	100½	93½	Shell Union Oil ....	1954	2½	J-J	55,000,000
105½	105½	103	106½	102½	107	101½	Standard Oil Co. (New Jersey) deb. ....	1961	3	J-D	85,000,000
104½	103½	105½	105½	103	107	100½	Standard Oil Co. (New Jersey) deb. ....	1953	2½	J-J	50,000,000
105	104½	106½	107½	102½	108½	102	Texas Corp. ....	1950	3	A-O	40,000,000

\* Also extra or extras.

\*\* For either fiscal or calendar year.

x New stock.

New Trade Marks of the Month

**Ensulat**

399,266

**Lather  
LEAVES**

399,268



399,282

**KOPAL**

399,284

**KWIKFLUX**

399,285



399,293

**PEP GO**

435,947

**Pee  
Pee-Cee  
Cee**

447,764

**Pee  
REEFLEH  
Cee**

447,765

**Pee  
REKPROOF  
Cee**

447,766



sea-sope

447,894



448,586



451,612

**Galen "B"**

452,070

**GALEN**

452,266



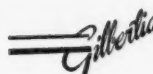
452,267

**REALM**

452,567

**ARCTUSINE**

452,648



452,690

**VEG-R-INE**

452,761



452,963



453,655



453,808

**Crystalox**

453,821



453,956

**STA-MO**

454,552



455,221

Trade Mark Descriptions†

399,266. Ensign Products Company, Cleveland, O.; Oct. 3, '41; for liquid products for brushing on the spark-plugs, distributor, generator, ignition coil, battery and terminals, wires and all electrical connections pertaining to the ignition system of gas engines for water proofing same and stopping corrosion thereon, and forming an insulating shield thereover; since Sept. 25, '41.

399,268. General Soap Company, Chicago, Ill.; for paper impregnated with soap and booklets of soap impregnated papers; since July 17, '41.

399,282. Barcelona Sales Co., Inc., New York, N. Y.; May 19, '42; for baby oil; since Oct. 1, '41.

399,284. Technical Laboratories, Inc., New York, N. Y.; June 13, '42; for liquid cosmetic applies to the teeth and a preparation for removing same; since Nov. 3, '41.

399,285. Special Chemicals Corp., New York, N. Y.; June 24, '42; for mixture of chemicals used for soldering, welding and brazing; since Oct. '37.

399,293. Wright & Lawrence Peau Seche Sales, Inc., Chicago, Ill.; Sept. 26, '42; for skin cream; since May 28, '35.

451,612. Rhino-Sole Ltd., West Croydon, England; Mar. 13, '42; for plastic compositions consisting principally of rubber for repairing footwear; since Jan. 1, '32.

452,070. Galen Company, Berkeley, Calif.; Apr. 1, '42; for vitamin B complex concentrates and elixirs and tonics containing the vitamin B complex; since Jan. '34.

452,266. Galen Company, Berkeley, Calif.; Apr. 10, '42; for elixirs, tonics, adsorbates, tablets, pills, vials and ampoules containing one or more vitamins and/or filtrate factors; since Jan. '34.

452,267. Galen Company, Berkeley, Calif.; Apr. 10, '42; for elixirs, tonics, adsorbates, tablets, pills, vials and ampoules containing one or more vitamin and/or filtrate factors; since Sept. '37.

452,567. Plee-Zing, Inc. (Household Products Co.), Chicago, Ill.; April 24, '42; for glass cleaning preparation, sweeping compound, laundry soap, and soap powder; since March, '38.

452,648. National Drug and Chemical Company of Canada, Ltd., Montreal, Que., Canada; Apr. 28, '42; for toilet preparation for the hair in the form of a pomade; since 1863.

452,690. M. Beatrice Gilbert, Galesburg, Ill.; Apr. 30, '42; for flower seeds and garden seeds; since Apr. 4, '42.

452,761. H. L. Barker, Inc., New York, N. Y.; May 4, '42; for oleomargarine; since Nov. 17, '41.

452,963. Spencer Kellogg & Sons, Inc.; Buffalo, N. Y.; May 12, '42; for paint oils, and specifically raw and boiled linseed oil; since Apr. 1, '42.

453,655. R. C. Williams & Company, Inc.; New York, N. Y.; June 13, '42; for bluing, lye and potash, disinfectants, insecticides, ammonia, ammonia powder, bleach, borax, javelle water, chloride of lime, sal soda, and food colorings; since Apr. 1, '42.

453,808. Joseph F. Moore, St. George, Staten Island, N. Y.; June 22, '42; for milk food products—namely, a cultured curdled milk for human consumption; since May 25, '42.

453,821. American Firstoline Corp.; New York, N. Y.; June 23, '42; for zinc pigments; since Sept. 1, '41.

453,956. Eastern Casting Corp., New York, N. Y.; June 30, '42; for aluminum alloy castings; since May 1, '42.

454,552. Bemis Associates, Inc., Watertown, Mass.; July 28, '42; for thermoplastic adhesive films and fabrics; since July 9, '42.

455,221. Carter Coal Company, New York, N. Y.; Sept. 1, '42; for coal; since Aug. 4, '42.

445,223. Carter Coal Company, New York, N. Y.; Sept. 1, '42; for coal; since Aug. 5, '42.

455,224. Carter Coal Company, New York, N. Y.; Sept. 1, '42; for coal; since Aug. 5, '42.

455,225. Carter Coal Company, New York, N. Y.; Sept. 1, '42; for coal; since Aug. 4, '42.

455,343. The Komel Corp., Dayton, O.; Sept. 4, '42; for alkali metal stearates and derivatives thereof; since Nov. 9, '40.

455,344. Lucien Lelong, Inc., Chicago, Ill.; Sept. 4, '42; for assortments of perfumes and colognes in packages; since Aug. 25, '42.

445,448. Vincent Christina & Co., Inc., New York, N. Y.; Sept. 10, '42; for preparation for the treatment of anemia; since Aug. 7, '42.

455,487. Standard Chemical Products, Inc., Hoboken, N. J.; Sept. 11, '42; for chemical preparation in liquid form used in the finishing of textile fibres, twisted and untwisted yarns, coning oils, piece goods, and as an assistant to sizes and finishes imparting pliability, good running properties, and drapery effect; since Dec. '33.

† Trademarks reproduced and described include those appearing in the *Official Gazette of the U. S. Patent Office* Dec. 22-Dec. 29, 1942.

New Trade Marks of the Month



445,223



455,224



455,225

KOMEL

455,343

Sextet  
455,344

HEMOPLEX  
455,448

STANTEX  
455,487

HURBENIUM  
455,594

HEM-LAX  
455,731

HYDROPACK  
455,848

150

456,011

PERMAWALL  
456,012

OROCOL  
456,091

Tuya  
456,104

Min-A-Rich  
456,140

MINERGY  
456,141



Mathew Kastin

456,149

WoolFoam  
456,209

Anthraflage  
456,223

DOGARDITE  
456,232

SULVETIL  
456,264

NEO-GUENTUM  
456,288

456,307

CERKEL  
456,340

SUPER-KAPS  
456,370

TOCOPHERINE  
456,545

Take-all  
456,596

PLIOBOND  
456,627

TILOQUINONA  
456,633



456,689

Trade Mark Descriptions (Cont'd.)

455,594. Nettle M. Hurd-Bullock, Detroit, Mich.; Sept. 17, '42; for metal alloys having a lead base; since Sept. 30, '37.

455,731. Rosemarie Lewis, Los Angeles, Calif.; Sept. 24, '42; for intestinal laxative and stomachic; since June 1, '42.

455,848. Clarence Pool, Los Angeles, Calif.; Sept. 29, '42; for packing, to-wit, packing rings, packings for piston rods, and packings for stuffing boxes; since Jan. 28, '41.

447,764. Potts-Curry Investment Co., Salt Lake City, Utah; Oct. 12, '41; for rubber belting and rubber chute lining; since Sept. 26, '41.

447,765. Potts-Curry Investment Co., Salt Lake City, Utah; Oct. 13, '41; for rubber belting and rubber chute lining; since Sept. 26, '41.

447,766. Potts-Curry Investment Co., Salt Lake City, Utah; Oct. 13, '41; for rubber belting and rubber chute lining; since Sept. 26, '41.

447,894. Sea Products Laboratories, Inc., New York, N. Y.; Oct. 17, '41; for hard and soft water toilet soap; since Nov. 20, '34.

448,586. Sea Products Laboratories, Inc.; Nov. 12, '41; for soap; since Nov. '34.

456,011. George M. Budeke (George M. Budeke Co. and Budeke's), Baltimore, Md.; Oct. 7, '42; for painters' materials—flat paint, paint enamel, primer and sealer, semi-gloss paint, and enamel undercoater; since Apr. 6, '39.

456,012. George M. Budeke (George M. Budeke Co. and Budeke's), Baltimore, Md.; Oct. 7, '42; for paste paint; since Sept. 11, '37.

456,091. W. H. and L. D. Betz, Philadelphia, Penna.; Oct. 9, '42; for preparation

used to inhibit deposits of scale in cooling water and boiler water systems; since July 12, '42.

456,104. Para Ti Corp., New York, N. Y.; Oct. 9, '42; for perfumes and cosmetics; since July 15, '42.

456,140. Ernest D. Fear, Kansas City, Mo.; Oct. 12, '42; for mixture comprising dextrose, lactose, carotene, calcium oxide, magnesium oxide, compounds of sodium and potassium, and other chemical ingredients, which mixture is used to increase the mineral content in the processing of milk and in the confection of ice cream; since Oct. 5, '42.

456,141. Ernest D. Fear, Kansas City, Mo.; Oct. 12, '42; for mixture comprising dextrose, lactose, carotene, calcium oxide, magnesium oxide, compounds of sodium and potassium, and other chemical ingredients, which mixture is used to increase the mineral content in the processing of milk and in the confection of ice cream; since Oct. 5, '42.

456,149. Mathew Kastin (Mathew Matzuni Laboratories), Detroit, Mich.; Oct. 12, '42; for medicine for the relief of dyspepsia, constipation and stomach disorders; since Sept. 28, '42.

456,209. Wool Novelty Co., Inc., New York, N. Y.; Oct. 14, '42; for washing compound for the cleansing of sweaters, socks and woollens; since Oct. 8, '42.

456,223. The Philadelphia and Reading Coal and Iron Co., Phila., Penna.; Oct. 15, '42; for mineral rock; since Oct. 1, '42.

456,232. Elmore E. Butterfield, Long Island City, N. Y.; Oct. 16, '42; for pore-filling, impregnating, water-repellent, and mildew-proofing liquids for materials such as ceramics, plastics, concretes, stone, gypsum products, leather, textiles, and paper; since July 15, '37.

456,284. Abbott Laboratories, North Chicago, Ill.; Oct. 19, '42; for suspension of a

sulfonamide in oil for use as a veterinary antiseptic; since Oct. 6, '42.

456,288. Hypex Co., New York, N. Y.; Oct. 20, '42; for ointment base for the use of pharmacists in compounding prescriptions for medicated ointments for the treatment of the skin; since Oct. 5, '42.

456,307. Guy G. Dillow (Sweetrest Company), Chicago, Ill.; Oct. 21, '42; for laxative tablets; since July 26, '19.

456,340. Spencer Kellogg and Sons, Inc., Buffalo, N. Y.; Oct. 22, '42; for paint oils, and specifically raw and boiled linseed oil; since Apr. 1, '42.

456,370. Sears, Roebuck and Co., Chicago, Ill.; Oct. 23, '42; for vitamin capsules; since Jan. 10, '41.

456,534. J. B. Kennington (Textile Apron Co.), East Point, Ga.; Oct. 30, '42; for long draft leather aprons used in textile machinery; since Aug. 20, '42.

456,545. Premo Pharmaceutical Laboratories, Inc., New York, N. Y.; Oct. 30, '42; for pharmaceutical preparations of vitamin E in the form of an elixir, capsules, tablets and syrup; since July, '42.

456,596. Garratt-Callahan Co. of California, San Francisco, Calif.; Nov. 2, '42; for liquid solvent for removing scale and other incrustations from equipment; since Oct. 22, '42.

456,627. The Goodyear Tire & Rubber Co., Akron, O.; Nov. 3, '42; for adhesive cement; since Oct. 26, '42.

456,633. E. R. Squibb & Sons, New York, N. Y.; Nov. 3, '42; for antihemorrhagic preparations; since July 19, '41.

456,689. Prince Matchabelli, Inc., New York, N. Y.; Nov. 7, '42; for cologne, dusting powder and bath oil; since Sept. 24, '42 on cologne and dusting powder; and since Oct. 28, '42 on bath oil.

## Summary of War Regulations

There are no more important subjects to the chemical industry today than priorities, allocations, import and price controls. Chemical Industries, last month, chronologically digested the important regulations up to November 30, 1942. This month new regulations are brought up to December 31, 1942. Next month and each month thereafter additional and revised regulations will be given.

By way of explanation a "P" order identifies a limited blanket rating given to a company, or an industry to facilitate the acquisition of scarce materials needed by such companies for defense or essential civilian production.

Distribution of commodities under industry-wide control generally is governed by "M" (material) orders, regulating distribution and flow of a given material into defense or essential civilian production channels.

Limits on the production of materials are covered by "L" limitation orders.

### Calcium Carbide

Dec. 9, 1942. Calcium carbide was placed under allocation control effective January 1, through issuance of General Preference Order M-190 by the Director General for Operations. Deliveries are prohibited without specific authorization except in the case of monthly shipments of 10 tons or less. Calcium carbide delivered for resale for house or mine lighting is also exempt from the requirement.

### Chlorine

Dec. 2, 1942. Restrictions on the use of chlorine and products containing available chlorine have been revised to remove from control of Conservation Order M-19 all products containing available chlorine such as liquid sodium hypochlorite, calcium hypochlorite, sodium chlorite and other similar products. Also exempted from the order, as amended, are deliveries and use of 2,000 tons of chlorine or less per month.

The new form of Order M-19 is a straight allocation order replacing the previous conservation and allocation order. Under the new order, control over the whole chlorine family will be exercised by controlling original shipments of chlorine.

### Fats and Oils

Dec. 4, 1942. In order to reduce further the consumption of fats and oils from which glycerine can be obtained, Petroleum Administrator for War Harold L. Ickes recommended (Recommendation No. 58) that all manufacturers of lubricating greases reduce their use of fatty oils commencing Jan. 1, 1943.

On April 15, 1943, all lubricating grease manufacturers are required to file a report on the amount of fats and oils used and grease made during the first calendar quarter-year of 1943, with the Director of Refining of the Petroleum Administration. Similar reports will be due for each calendar quarter on the 15th of the month following each quarter.

### Fertilizers

Dec. 4, 1942. Sale and deliveries of chemical fertilizers restricted by amendment to Conservation Order M-213.

Dec. 5, 1942. In order that fertilizer deliveries may be made at the current opening of the new selling season and thus not impede farm operations, the Office of Price Administration told fertilizer manufacturers that they may enter into sales agreements with and make deliveries to their customers on an "open price" basis for a period not to exceed 60 days, subject, however, to later OPA review.

Dec. 29, 1942. Consumer ceiling prices on mixed fertilizer and superphosphate raised in specified areas by the Office of Price Administration in order to give manufacturers relief from part of their recent cost increases.

The increases vary from area to area, with the highest adjustments allowed in the Northeastern states and no increases permitted on the Pacific coast.

The price increases, however, possibly may be made greater—except in the Far West—by extensive use of oil seed meals for nitrogen in mixed fertilizers. These meals are costly sources of nitrogen, for which special price allowances are made.

Dec. 30, 1942. A specific list of articles covered, including, for the first time, articles made of rubber substitutes, added by the Office of Price Administration to the regulation under which manufacturers determine maximum prices for new lines of rubber products.

The changes are in Amendment No. 2 to Maximum Price Regulation No. 220—Certain Rubber Commodities—effective January 4, 1943.

### Sulfamic Acid

Dec. 12, 1942. Small amounts of sulfamic acid and sulfamic acid derivatives were made available by the Director General for Operations to various laboratories, without application to the War Production Board, through issuance of General Preference Order M-242 as amended.

### Sulfuric Acid

Dec. 5, 1942. Sulfuric acid, including oleum and spent acid, placed under allocation control through the issuance by Director General for Operations of General Preference Order M-257.

Under the terms of M-257, however, deliveries of acid will not be prohibited subject to specific authorization as is usually the case with an allocation order. Instead, it will be possible under the order to issue directions when and as needed, covering deliveries to be made and uses to be permitted or prohibited.

The order arises from the need of assuring a continuous supply of sulfuric acid to fulfill military explosives requirements. Because of that need it is vital to be able to direct, promptly and efficiently, the manufacture and distribution of sulfuric acid as well as the disposition and use of spent sulfuric acid produced at ordnance works.

### Titanium Pigments

Dec. 9, 1942. Restrictions on use of titanium pigments removed through revocation by the Director General for Operations of General Preference Order M-44.

Titanium pigments are produced from ilmenite ore formerly imported from India, and about nine months' supply is in this country. Production of domestic ilmenite, now at 40 per cent of capacity, is expected to reach full production of 26,000 short tons monthly within a few months. This is equal to about 12,000 tons of titanium dioxide per month.

This will be enough to meet our titanium pigment needs. In addition, domestic production of rutile ore equals about 200 tons of titanium dioxide per month.

### Graphite

Dec. 4, 1942. Complete control over distribution and use of graphite will be effected by Conservation Order M-61, as amended today by the Director General for Operations.

## War Regulations

Priorities, Allocations, Important Price Controls—p. 42

Madagascar Flake Graphite alone was covered by the previous order. The amendment extends this control to a lower grade than was previously covered and brings into control all graphite, imported and domestic, which will stand on a number 50 mesh screen.

Beginning immediately, no person may put into process for any purpose whatever any strategic graphite except with specific authorization by WPB.

### Laboratory Equipment

Dec. 5, 1942. Additional control over purchase of laboratory equipment put into effect by issuance of Limitation Order L-144, as amended.

The amended order provides that no purchaser of laboratory equipment shall be permitted to acquire an item valued at more than \$50 or any quantity of the same item to the value of more than \$50, without securing an authorization for such purchase from the Director General for Operations.

Application should be made on Form PD-620. Purchases authorized on the basis of this form will be assigned an AA-4 rating.

"Laboratory equipment" is defined in the order to mean material, instruments, appliances, devices, parts thereof, tools and operating supplies for laboratories, or for use in connection with

operations usually carried on in laboratories, not including second-hand items.

### Resins

Dec. 8, 1942. Because of military requirements, a critical shortage exists in raw materials normally used for the production of vinyl resin and pyroxylin coated fabrics, and their use in civilian production must therefore be curtailed, members of the Pyroxylin Vinyl Resin Coated Paper and Fabrics Industry Advisory Committee were told.

### Rubber

Dec. 28, 1942. Revision of the rubber control orders, M-15-b and M-15-b-1, announced.

M-15-b-1 sets up complete specifications for the manufacture of 31 classes of products. Numerous changes have been made in these regulations and manufacturers are advised to study the revised order thoroughly. The new regulations went into effect Jan. 1, 1942.

The changes in M-15-b are designed to reduce unnecessary paper work, to clarify certain definitions and to correct other minor points.

### Vanadium

Dec. 26, 1942. An amended vanadium order, M-23-a, was issued today by the Director General for Operations so

as to bring within the framework of the order special directives which have been issued from time to time in the course of administering its restrictive provisions.

The amended order makes no basic changes in the control of vanadium as it is now administered by the Ferro-Alloys Branch of the Steel Division. Changes are in language and form.

### Zinc

Dec. 22, 1942. Zinc dust to be put under complete allocation and use control Jan. 1, 1943, by General Preference Order M-11-1. At the same time Order M-11-a, covering zinc oxide and zinc dust, was amended to eliminate any reference to zinc dust after January 1, 1943.

Under the new order, the entire supply of zinc dust will be allocated. Previously, M-11-a provided that certain percentages might be set aside and allocated each month. Use control will now be specific, instead of indirect.

Production of dust under toll agreements is forbidden by the new order. Formerly any person could accept delivery of zinc dust, but now delivery of zinc dust may be accepted only up to the amount specified in the allocation certificate issued by WPB.

Don't hesitate to switch to paper bags even if you have always used wood or metal containers! These tough, strong Raymond Multi-Wall Paper Shipping Bags are doing a real job in the chemical field. CUSTOM BUILT in any size or strength . . . VALVE or OPEN MOUTH . . . PASTED or SEWN . . . PLAIN or PRINTED . . . there's a RAYMOND BAG made-to-order for practically any granulated, crushed or powdered chemical. Available for civilian or wartime needs.

**THE RAYMOND BAG CO.**  
Middletown, Ohio

HERE'S  
THE ANSWER!



**FACING A PACKING  
AND SHIPPING  
PROBLEM?**

**RAYMOND Multi-Wall PAPER BAGS**

U. S. Chemical Patents

Off. Gaz.—Vol. 542, Nos. 3, 4—Vol. 543, Nos. 1, 2, 3—p. 383

**A Complete Check—List of Products, Chemicals, Process Industries**

**Agricultural Chemicals**

**Mineral Feedstuff.** No. 2,295,643. Frederic Emery and Irene Levis to the Harshaw Chemical Company, Tennessee Eastman Corp.  
**Treatment of cut surfaces of fruit for inhibiting discoloration by applying to surface an aqueous thiosulfate solution.** 2,298,933. Eduard Elion.  
**Non-plastic, non-sticky compounded zein base for use in preparation of zein solution or coating compositions comprising zein and an inorganic acid.** 2,298,549. Roy Coleman to Time, Inc.  
**Composition for preserving green fodder comprising as its active ingredient a nitrite.** 2,298,514. Friedrich Stauf and Georg Janning to Winthrop Chemical Co., Inc.  
**Casein sheet material.** 2,297,959. Herman Heckel to Marbon Corporation.  
**Improvement in propagating plants from cuttings and the like which comprises treating the same with an aqueous solution of a dihydronaphthalene dicarboxylic acid.** 2,297,904. John Lontz to E. I. du Pont de Nemours & Co.  
**Method of preparing vegetable proteins.** 2,297,685. John Brier and Gerard Mulder to Welsh and Green, Inc.  
**Method of treating dried peas, consisting in subjecting the peas to be treated to a cooking process and adding alkali citrates to said peas to accelerate disintegration thereof.** 2,297,502. Willi Rudolph.  
**Method of preserving fish and similar food products of animal origin.** 2,297,441. Rudolf Thilenium.  
**Apparatus for mixing viscous material with stock feed.** 2,297,069. Robert A. Nelson.

**Cellulose**

**Hand size regenerated cellulosic sponge bounded essentially by rectangular surface of spongelike porosity.** No. 2,295,823. Thomas Banigan and Omar Snyder to E. I. du Pont de Nemours & Co.  
**Method of deep-drawing ethyl cellulose films.** No. 2,296,723. Richard McClurg and Frederick Dulmage, Jr. to The Dow Chemical Co.  
**Embossing sheets of cellulose acetate and the like.** No. 2,296,804. Douglas Winnek to Research Corporation.  
**Method of preparing cellulose derivatives and product obtained thereby.** 2,298,260. Julius Kantorowicz.  
**Gelatinous sheets, films, and plastic masses.** 2,298,162. Anderson Ralston to Armour & Co.  
**Process for the production of cellulosic structure.** 2,297,746. William Charch and William Underwood to E. I. du Pont de Nemours & Co.  
**Cement for bonding foils having a basis of cellulose acetate to surfaces of textile fabrics and other materials, comprising 100 parts by weight of nitrocellulose, having a combined nitrogen content of 11% and a viscosity of 20 to 25 and 80 parts by weight of methyl phthalyl ethyl glycolate dissolved in a solvent mixture consisting of 335 parts by weight of acetone and 540 parts by weight of mono methyl ether of ethylene glycol.** 2,296,891. Bjorn Anderson to Celanese Corp. of America.  
**Manufacture of cellulose derivatives and of artificial filaments, films, and other shaped articles therefrom.** 2,296,856. Leon Lilienfeld, Antonie Lilienfeld, administratrix to Lilienfeld Patents, Inc.

**Ceramics**

**Laminated glass and mounting.** 2,298,874. Brook Dennison and Frank Painter to Pittsburgh Plate Glass Co.  
**Glass composition and product thereof.** 2,298,746. Harold Moulton to American Optical Co.  
**Recovery of wastes from glass grinding and polishing operations.** 2,297,628. Rob McGregor to Norbert Garbisch.  
**Porous ceramic articles and method of making the same.** 2,297,539. Grant Diamond to Electro Refractories & Alloys Corp.  
**Ceramic process.** 2,296,961. Joseph R. Thompson to The Hall China Co.

**Chemical Specialty**

**Process of manufacturing detergent soap containing substantial amount of soap in the beta phase, the step which comprises chilling a soap mass.** No. 2,295,594. Victor Mills to The Procter and Gamble Co.  
**Soap product in particle form, of formula suitable for household and laundry use, containing substantial proportion of sodium soap in the beta phase.** No. 2,295,595. Victor Mills to The Procter and Gamble Co.  
**Soap product in flake form, of formula suitable for household and laundry use, containing substantial proportion of sodium soap in the beta phase.** No. 2,295,596. Victor Mills to The Procter and Gamble Co.  
**Process of seal coating asphalt impregnated felt base material.** No. 2,295,969. Paul Powers to Armstrong Cork Co.  
**Composition for cleaning and polishing automobile windshields.** No. 2,296,097. Alfred Emiley.  
**Water soluble complex of casein with water soluble basic aluminum acetate, which when applied as sizing upon textiles, paper, leather and the like, and dried, produces dressing that is substantially fast to laundering.** No. 2,296,108. Walter Kinney to The Borden Company.  
**Germicidal soap composition comprising combination of soap base with finely divided crystals of aromatic sulfon chloramide.** No. 2,296,121. James Smith.  
**Lubricating oil containing a copolymer of an oleostearin and an olefine.** No. 2,296,315. William Sparks and Donald Field to Standard Oil Development Co.  
**Bracing flux composition.** No. 2,296,442. Oskar Horowitz to Albert I. Elias.  
**Non-caking abrasive scouring powder.** No. 2,296,689. Paul Soderberg to The B. J. Ford Co.  
**Non-caking abrasive scouring powder.** No. 2,296,690. Paul Soderberg to The B. J. Ford Co.

**Method for producing a glue broth for gluing veneers and plywoods by hot pressing.** No. 2,296,742. Curt Schulein to Taccalin Chemical Corp.  
**Detergent composition in solid cake form.** No. 2,296,767. Coleman Caryl to American Cyanamid Co.  
**Stabilized dry rosin size.** 2,298,876. Arthur Dreshfield to Hercules Powder Co.  
**Steam cylinder lubricant.** 2,298,855. Konald Wright to Jasco, Inc.  
**Solid bullet lubricant.** 2,298,844. Albert Schilling and Thomas Curran to Remington Arms Co., Inc.  
**Dental impression composition.** 2,298,835. Stanley Noyes.  
**Lubricant.** 2,298,883. Clifford Muessig to Jasco, Inc.  
**Detergent composition.** Jay Harris to Monsanto Chemical Co.  
**Insecticide comprising a non-corrosive organic solvent.** 2,298,681. Gerald Coleman to The Dow Chemical Co.  
**Process of preparing non-slip material comprising water-proofing vegetable grit.** 2,298,664. Yates Van Patter to Leon Finch, Ltd.  
**Non-caking, free-flowing particulate solid detergent composition having apparent specific gravity of about 1.0 to 5.0.** 2,298,651. Nicholas Samaras and Jay Harris to Monsanto Chemical Co.  
**Non-caking, free-flowing particulate solid detergent composition having apparent specific gravity of about 0.05 to 0.25.** 2,298,650. Nicholas Samaras and Jay Harris to Monsanto Chemical Co.  
**Extreme pressure lubricating composition.** 2,298,640. Carl Prutton to The Lubri-Zol Corp.  
**Extreme pressure lubricating composition.** 2,298,639. Carl Prutton to The Lubri-Zol Corp.  
**Extreme pressure lubricating composition.** 2,298,638. Carl Prutton to The Lubri-Zol Corp.  
**Extreme pressure lubricating composition.** 2,298,637. Carl Prutton to The Lubri-Zol Corp.  
**Extreme pressure lubricating composition.** 2,298,636. Carl Prutton to The Lubri-Zol Corp.  
**Lubricant and method of lubricating.** 2,298,301. Amos Knutson to The Lubri-Zol Corp.  
**Synthetic compost for mushroom culture.** 22,202. Benjamin Stoller to Louis Lambert.  
**Baking powder composition.** 2,298,187. John Woodhouse to E. I. du Pont de Nemours & Co.  
**Digitalis capsule comprising an outer layer of gelatin enclosing digitalis leaf suspended in an inert, water-free viscous oil vehicle, said digitalis leaf containing not substantially in excess of 10% moisture.** 2,298,122. Joseph Hailer and Clare Ewing to United Drug Company.  
**Lubricating oil for diesel engines.** 2,298,080. Philip Clarke and Marcellus Flaxman to Union Oil Co. of Calif.  
**Shaving cream.** 2,298,019. Latimer Myers to Emery Industries, Inc.  
**Uncooked fondant producing carbohydrates, including sucrose and anhydrous betadextrose, characterized by a grain of microscopic size ranging from 5 to 25 microns.** 2,297,764. Alfred Holven and William Junk.  
**Organic arsenic compound-bearing lubricants.** 2,297,658. Bert Lincoln and Gordon Byrkit to Continental Oil Co.  
**Chewing gum base.** 2,297,651. Carl Hartwig and Boris Lougovoy to American Chicle Co.  
**Fungicidal derivatives of acetantranillic acid.** 2,297,557. William Hester and W. Craig to Rohm & Haas Company.  
**Process of detoxicating castor pomace.** 2,297,503. Willi Rudolph.  
**Detoxication of castor pomace.** 2,297,434. Willi Rudolph.  
**Disinfectant, aqueous emulsions of emulsifying agents and hydroxy-biphenyls stabilized by aromatic ethers.** 2,297,388. Helmut Bohler.  
**Composition for waterproofing permeable material.** 2,297,183. Constantine F. Fabian and James B. Lee to Lee Bros. Hats, Inc.  
**Solution of chemotherapeutic agents in ethylidene glycerol.** 2,297,079. Horace A. Shonle to Eli Lilly & Co.  
**Impressionable mass for intra-oral dental impressions comprising a mixture of ethyl methacrylate resin and ethyl alcohol in proportions of from one to three parts of dry powdered ethyl methacrylate resin to one part of ethyl alcohol by volume.** 2,296,877. Fred A. Slack, Jr.

**Coal Tar Chemicals**

**Pyrimidine derivatives.** No. 2,295,560. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Pyrimidyl cyanoalkyl sulfides.** No. 2,295,559. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Triazinyl cyanoalkyl sulfides.** No. 2,295,561. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Triazine derivatives.** No. 2,295,562. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Diazine derivatives.** No. 2,295,563. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Diazine derivatives.** No. 2,295,564. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Triazine derivatives.** No. 2,295,565. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Diazine derivatives.** No. 2,295,566. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Triazine derivatives.** No. 2,295,567. Gaetano D'Alelio and James Underwood to General Electric Co.  
**Substituted [1, 3, 5-Triazinyl-(6)]-aminophenyl-arsonic acids and process for manufacture of same.** No. 2,295,574. Ernst Friedheim.  
**Preparation of pyrrolidone carboxylic acids and their esters and products.** No. 2,295,600. Samuel Natelson and Samuel J. Kahn.  
**Lutidine compounds.** No. 2,295,606. George Riethof to Pittsburgh Coke & Iron Co.  
**Separation of resin-forming aromatic hydrocarbons from mixtures by solvent extraction.** No. 2,295,612. Frank Sodday to The United Gas Improvement Co.  
**Process of producing aliphatic polyhydroxy compounds.** No. 2,295,618. Carl Wulff and Helmut Ohlinger to General Aniline & Film Corp.

## U. S. Chemical Patents

Off. Gaz.—Vol. 542, Nos. 3, 4—Vol. 543, Nos. 1, 2, 3—p. 384

**Benzanthrones and a process of preparing them.** No. 2,295,649. Heinrich Greume and Karl Schneider to General Aniline & Film Corp.

**Alphylxymethyl amines.** No. 2,295,709. Louis Bock to Rohm & Haas Company.

**5-(sulfanilamido)-2-substituted pyridines and related compounds.** No. 2,295,867. Richard Roblin, Jr., and Philip Winneck to American Cyanamid Co.

**P-substituted-benzenesulfonyl biguanides and methods for their preparation.** No. 2,295,884. Philip Stanley Winneck to American Cyanamid Co.

**Condensation products of the pyrene series.** No. 2,295,963. Heinrich Neresheimer and Anton Vilsmeier to General Aniline & Film Corp.

**Recovery of tar acids from tar.** 2,298,816. Charles Ambler, Jr. to The Sharples Corp.

**System for making carbon black.** 2,298,325. Ira Williams to J. M. Huber Corp.

**Coal tar pitch and a method for preparing the same.** 2,297,455. Alfred Brautigam, Horst Walther, and Karl Lang and Kurt Berlin.

**Separating hydrocarbon fluids.** 2,296,992. Wright W. Gary to The M. W. Kellogg Co.

## Coatings

**Method of producing vitreous enamel coating on the face of substantially flat article.** No. 2,295,945. Howard Fralish to Western Electric Co., Inc.

**Method of treating articles with metallic surfaces containing paint coat which comprises applying an aqueous solution of rustproofing materials and then applying finish coats in the usual manner.** No. 2,296,070. John Thompson and Edwin Goodspeed to Parker Rust Proof Co.

**Lacquer comprising two solvent-soluble film-forming cellulose derivatives of class consisting of cellulose esters and cellulose ethers dissolved in solvent mixture.** No. 2,296,337. John Seneca Cummings to Interchemical Corp.

**Method of coating interior surface of glass envelope of electric discharge device with finely divided fluorescent material.** 2,298,968. Willard A. Roberts and Hannah T. Beissbuhler to General Electric Co.

**Manufacture of bases for coating materials from fatty oils.** 2,298,915. Laszlo Auer.

**Coating composition comprising solution of prolamin in solvent mixture characterized by presence of an alcohol and an inorganic acid.** 2,298,548. Roy Coleman to Time, Inc.

**Process of coating metallic piece parts to prevent tarnish or oxidation.** 2,298,513. Harry Rogers to Teletype Corp.

**Coating solution containing a coating acid phosphate and hydroxylamine.** 2,298,280. Wilfred Clifford and Henry Adams to Parker Rust-Proof Co.

**Coated or color granules for use as roofing granules having on the exterior an adherent coating.** 2,298,277. Howard Burton, Jr. to Minnesota Mining & Mfg. Co.

**Coating for metals exposed to corrosion and abrasion.** 2,298,079. Gale Adams and Ronald to Socony Vacuum Oil Co.

**Hot-melt coating composition comprising cellulose ethers.** 2,297,709. Toivo Kauppi and Earle Kropscott to The Dow Chemical Co.

**Method of applying cement coating.** 2,297,549. William Friedlaender to Universal Atlas Cement Co.

**Luminiscent coating.** 2,297,048. Leslie F. Britten, Henry G. Jenkins and Alfred H. McKeag to General Electric Co.

## Dyes, Stains

**Chromable dyestuffs of the triarylmethane series and process of preparing them.** No. 2,296,153. Wilhelm Eckert and Karl Schilling to General Aniline & Film Corp.

**Fluorescent coloring material including vehicle for affixing the material to surfaces to be colored and fluorescent ingredient consisting of chrysene.** No. 2,296,589. John Yule to Eastman Kodak Co.

**Filter dye and photographic material containing the same.** 2,298,733. Leslie Brooker and Robert Sprague to Eastman Kodak Co.

**Pyrrrole filter and backing dye.** 2,298,731. Leslie Brooker and Robert Sprague to Eastman Kodak Co.

**Light sensitive diazotype material.** 2,298,444. Arnold Weissberger and Waldemar Vansetow to Eastman Kodak Co.

**Azo dyestuffs.** 2,298,303. Emil Masslin and Rudolf Thomann to Society of Chemical Industry in Basle.

**Azo dyes.** 2,297,801. Swanie Rossander and Chiles Sparks to E. I. du Pont de Nemours & Co.

**Anthraquinone carbazole dyes.** 2,287,777. Walter Kern and Theodor Holbro and Richard Tobler to Society of Chemical Industry in Basle.

**Photographic color process involving the formation of azo dye images.** 2,297,732. David Woodward to E. I. du Pont de Nemours & Co.

## Equipment

**Apparatus for catalytic cracking.** 2,298,583. Louis Rubin, Walter Montgomery, William Degen to The M. W. Kellogg Co.

**Apparatus for determining the freezing point of liquids.** 2,297,641. Joseph Webber to Lacey-Webber Co.

**Apparatus to produce bent glass.** 2,297,315. Wm. Owen to Pittsburgh Plate Glass Co.

**Drying apparatus.** 2,297,314. Bernard Offen.

**Pressure relief valve.** 2,297,003. Donald E. Larson to Chicago Bridge & Iron Co.

**Apparatus for maintaining desired temperature of liquids.** 2,296,946. Martin H. Olstad and Allan E. Williams to Niagara Blower Co.

## Equipment, Apparatus

**Apparatus for the reversal of color negatives.** No. 2,295,628. Friedrich Biedermann to General Aniline & Film Corp.

**Apparatus for spinning fibers from suitable molten material.** No. 2,295,639. Daniel Drill to American Rock Wool Corp.

**Method and means of attaching thermometer tubes to bases.** No. 2,295,703. Ralph Wapner to The Ohio Thermometer Co.

**Apparatus for conversion of hydrocarbon gases and fuels.** No. 2,295,752. George Parkhurst to Standard Oil Co.

**Dehydrating and treating apparatus.** No. 2,295,912. Walter Pagenkopf to Teletype Corp.

**Gas analysis chamber adapted to contain a gas having known constituent the percentage purity of which is to be investigated.** No. 2,296,030. Chester Hall to General Electric Co.

**Apparatus for measuring fluid pressure.** No. 2,296,237. Henry Allen.

**Companion elements in chemical apparatus formed of glass and having portions in interfitting engagement with each other to form tight joint.** No. 2,2181. William Schilling to Ace Glass Incorporated.

**Liquid flow control apparatus.** No. 2,296,247. Walter Green to Inflico Inc.

**Liquid mixing device.** No. 2,296,266. Frank Breckenridge to Westinghouse Electric & Mfg. Co.

**Apparatus for recovering the metal from metallic oxides.** No. 2,296,422. Byron Carl.

**Colloid mill.** No. 2,296,564. Louie Morehouse, Glenn Morehouse.

**Method of raising the pressure in a liquid container for dispensing.** No. 2,296,598. William Cook to Phillips Petroleum Co.

**Rotary apparatus for pumping volatile liquids.** No. 2,296,640. Odd Hansen to The Linde Air Products Co.

**Gravity chemical clarification system for cleaning a dry cleaning solvent.** No. 2,296,739. Arthur Ray.

**Apparatus adapted for production of acetylene from normally liquid hydrocarbons.** No. 2,296,796. Floyd Metzger to Air Reduction Co., Inc.

## Explosives

**Liquid explosive.** 2,298,255. Nevil Hopkins.

**Manufacture of trinitrotoluene of high purity.** 2,297,733. Joseph Wyler and Richard Boyd to Trojan Powder Co.

**Liquid oxygen explosive.** 2,297,538. Arthur Denues.

## Fine Chemicals

**Process for the manufacture of dibromofluoranthenes.** No. 2,295,665. Walter Kern and Theodor Holbro and Richard Tobler to Society of Chemical Industry in Basle.

**Photographic fixative composition containing boric acid esters of polyhydric alcohols of at least six carbon atoms.** No. 2,295,734. Charles Holzwarth to E. I. du Pont de Nemours & Co.

**Preparation of nicotinic acid.** No. 2,295,870. Howard Seibert and Joseph Tabor to S. M. A. Corporation.

**Estradiol derivatives and process for preparing same.** No. 2,295,980. Rezzo Weiss.

**Method of photographic development to a predetermined value of contrast.** No. 2,296,048. Leonti Planskoy to Process Development Corp.

**Fat soluble vitamin B<sub>6</sub> preparations essentially consisting of therapeutically pure acetyl derivatives of vitamin B<sub>6</sub> concentrates.** No. 2,296,167. Richard Huhn and Gerhard Wendt to Winthrop Chemical Co., Inc.

**New derivative of 2, 5-Diamino-1,4-benzoquinone.** No. 2,296,214. Gerhard Langbein to General Aniline & Film Corp.

**Process of color forming development and photographic compositions containing color forming compounds.** No. 2,296,271. George Dawson to E. I. du Pont de Nemours & Co.

**Method of preparing material having the physiological activity of the corpus luteum hormone.** No. 2,296,284. Percy Julian and John Cole to The Glidden Company.

**Water soluble derivative of vitamin D.** No. 2,296,291. Nicholas Milas to Research Corporation.

**Nondiffusing metallic salt coupler compound for color-forming photographic emulsion.** No. 2,296,306. Willard Peterson to Eastman Kodak Co.

**Metal ferrihemoglobin therapeutic compound.** No. 2,296,377. Robert Barnard to Armour and Company.

**Method for the production of hormones.** No. 2,296,572. Tadeus Reichstein to Roche-Organon, Inc.

**Cardio-active substances and processes for their production.** No. 2,296,677. Wilhelm Kussner to Merck & Co., Inc.

**Oxidation product of  $\alpha$ -tocopherol and process of preparing the same.** No. 2,296,709. Erhard Fernholz to Merck & Co., Inc.

**Process of producing series of latent color component images in bi-pack type of film.** 2,299,015. Otto C. Gilmore to Cosmocolor Corp.

**Photographic film.** 2,298,997. Edwin C. Yauck and John Dessauer to The Haloid Co.

**Process of producing monoalkyl ethers of vitamin.** 2,298,490. Richard Kuhn and Gerhard Wendt to Winthrop Chemical Co., Inc.

**Nondiffusing sulphonamide coupler for color photography.** 2,298,443. Arnold Weissberger to Eastman Kodak Co.

**Production of Photographs in Blue Black tones.** 2,298,093. Fritz Dersch and Newton Heimbach to General Aniline & Film Corp.

**As a light-sensitized material for photographic and printing purposes an aqueous solution of arabogalactan and a light-sensitizing agent capable of acting thereon.** 2,297,932. William Wood to Harris-Seybold-Potter Co.

**Process of preparing growth promoting vitamin B<sub>2</sub> (vitamin G) by fermentation.** 2,297,671. Izue Yamasaki.

**Stable vitamin C and process for preparing same.** 2,297,212. Heinrich Gockel.

**Black trisazo dye.** 2,296,925. Emmet F. Hitch to E. I. du Pont de Nemours & Co.

**Light-sensitive silver halide photographic material.** 2,296,843. Bela Gaspar to Chromogen, Inc.

## Industrial Chemicals

**Recovery of sulfur dioxide from gas mixtures.** No. 2,295,587. Edward Fleming and T. Cleon Fitt to American Smelting and Refining Co.

**Method for preventing corrosion of hydrogen chloride burners and coolers.** No. 2,295,591. Aylmer Maude to Hooker Electrochemical Co.

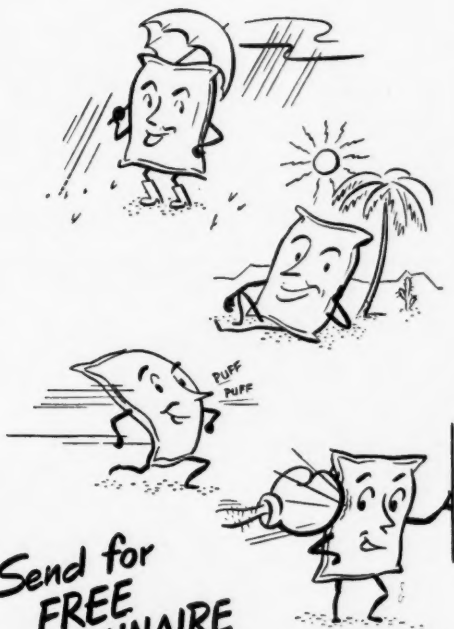
**Process for manufacture of sulfuric acid from sulfur containing more than about 0101 per cent non-combustible material.** No. 2,295,605. Earl Ridler to E. I. du Pont de Nemours & Co.

**Manufacture of ketene, acetic anhydride, and homologues thereof.** No. 2,295,644. Leonard Fallows and Eric Vernon Mellers to Celanese Corporation of America.



# BAGS FOR CHEMICALS!

If you have been affected by WPB Order L-197, chances are your chemicals can be practically and economically shipped in a CHASE Chemical Bag. The Chase Bag Company—specialists in bag packaging for over 95 years—has already *tested and qualified* bags for many chemicals requiring highly exacting shipping conditions.



Send for  
**FREE  
QUESTIONNAIRE**

Mail the coupon at the bottom for free Analytical Questionnaire that helps our research specialists solve your specific problem. No obligation, of course:



## Bags that keep Moisture Out

Chase supplies plain or highly specialized combinations of fabrics, papers and mastic compounds to resist spoilage from a wide variety of external conditions.

## Bags that keep Moisture In

Other bags are made to retain essential moisture contents under trying conditions.

## Bags that Breathe

Or, if your product demands air circulation, Chase has bags that permit free ventilation.

## Bags that can "Take It"

Chase makes bags light in weight or sturdy enough to hold cast iron parts. Combinations of various qualities are available for your product.

# CHASE BAG CO.

### GENERAL SALES OFFICES 309 W. JACKSON BLVD. CHICAGO, ILL.

BUFFALO	GOSHEN, IND.	CHAGRIN FALLS
TOLEDO	MEMPHIS	PHILADELPHIA
BOISE	MILWAUKEE	MINNEAPOLIS
DALLAS	KANSAS CITY	ORLANDO, FLA.
ST. LOUIS	NEW ORLEANS	OKLAHOMA CITY
NEW YORK	CLEVELAND	SALT LAKE CITY
DETROIT	PITTSBURGH	PORTLAND, ORE.
DENVER	HUTCHINSON	JACKSONVILLE, FLA.
HARLINGEN, TEXAS		REIDSVILLE, N. C.

Mail this Coupon for

## FREE QUESTIONNAIRE

Department 1  
309 W. Jackson Blvd.  
Chicago, Illinois

Please send us your Analytical Questionnaire and full information about your chemical bags. We understand this does not obligate us to buy.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

## U. S. Chemical Patents

Off. Gaz.—Vol. 542, Nos. 3, 4—Vol. 543, Nos. 1, 2, 3—p. 385

- Method of preparing catalyst consisting of sub-sulfide of nickel and cobalt. No. 2,295,653. Roland Griffith and John Geoffrey Plant to The Gas Light & Coke Co.
- Quaternary ammonium compounds and method of producing the same. No. 2,295,655. Winfrid Hentrich, Wilhelm Kaiser and Werner Reuss to "Patchem A.-G. Zur Beteiligung an Patenten und Sonstigen Erfindungsrechten auf Chemische Verfahren."
- Process of phenolic dealkylation producing phenol. No. 2,295,672. Virgil Meharg and Kenneth Coons to Bakelite Corporation.
- Process of phenolic dealkylation producing phenol and using nickel sulfide catalyst. No. 2,295,673. Virgil Meharg and Kenneth Coons to Bakelite Corporation.
- Process of phenolic dealkylation producing phenol and using aluminum compounds as catalysts. No. 2,295,674. Virgil Meharg and Kenneth Coons to Bakelite Corporation.
- Process of phenolic dealkylation producing phenol using barium, cadmium, and zinc compounds as catalysts. No. 2,295,675. Virgil Meharg and Kenneth Coons to Bakelite Corporation.
- Process of preparing terpene hydrate. No. 2,295,705. Albert Weisenborn.
- Water treating apparatus for continuous flocculation. No. 2,295,714. Bradford Clark to The Permutit Co.
- Process for separating aldehydes and ketones. No. 2,295,760. Richard Schreiber to E. I. du Pont de Nemours & Co.
- Stabilization of olefinic distillates against gum formation by addition of gum inhibitors. No. 2,295,773. Joseph Chenicek to Universal Oil Products Co.
- Wetting, sudsing and detergent agent. No. 2,295,831. Coleman Caryl to American Cyanamid Co.
- Allyl esters of acrylic acid and homologues. No. 2,295,923. Carl Barnes to E. I. du Pont de Nemours & Co.
- Alpha substituted allyl esters of acrylic acid and homologues. No. 2,295,924. Carl Barnes to E. I. du Pont de Nemours & Co.
- Composition for impregnating fibrous electrical insulating materials comprising substantially equal parts of cellulose acetate and Vinsol, and solvent comprising acetone. No. 2,295,958. Raymond Lutz to Western Electric Co.
- Method of producing sheet backed fibrous mineral wool sections as continuous process to form accumulated slag with sufficient silica content. No. 2,295,971. Clinton Savidge to Ohio Insulation Co.
- Process of improving bonding power of asphalt containing normal amounts of asphaltic acids towards a metallic surface corrodible by said acids. No. 2,295,974. Stanley Sorem to Shell Development Co.
- Process for the preparation of improved aluminum chloride catalysts suitable for catalyzing hydrocarbon reactions. No. 2,295,977. Samuel Benson Thomas and Frank McMillan to Shell Development Co.
- Process for purification of essential oil. No. 2,296,004. William Carrington Platt to California Fruit Growers Exchange.
- Refining naphthenic acids. No. 2,296,039. Edwin C. Knowles and Frederic McCoy to The Texas Company.
- Process of producing hydrofluoric acid low in fluosilicic acid. No. 2,296,118. Louis Preisman to General Chemical Co.
- Method of producing light stable solution of tetraalkyl lead compound. No. 2,296,199. Troy Cantrell and Carlton Suplee to Gulf Oil Corp.
- Method of stabilizing solution of tetra-alkyl lead compound against haze formation. No. 2,296,200. Troy Cantrell and Carlton Suplee to Gulf Oil Corporation.
- Production of nitrogenous condensation products. No. 2,296,211. Hans Drzilkalla and Richard Armbruster to General Aniline & Film Corp.
- Method for the purification of crude maleic anhydride containing colored impurities and impurities which darken on standing. No. 2,296,218. William Middleton, Jr. to Hercules Powder Co.
- Nitrogenous condensation products and process of producing same. No. 2,296,225. Heinrich Ulrich to General Aniline & Film Corp.
- Nitrogenous condensation products and process of producing same. No. 2,296,226. Heinrich Ulrich to General Aniline & Film Corp.
- Electric process for desalting mineral oil. No. 2,296,239. Edmund Bailey to Petrolite Corp.
- Method for permanently reducing swelling and shrinking of wood which comprises continuously passing dry wood beneath the surface of a fused salt. No. 2,296,316. Alfred Stamm to Henry Wallace, Sec. of Agriculture of U. S.
- Process for absorption and separation of nitrogen peroxide from chlorine. No. 2,296,328. Herman Beekhuis, Jr. to The Solvay Process Co.
- Softener for halogen-containing high-molecular weight, organic compounds. No. 2,296,331. Max Bogemann and Johannes Nelles to General Aniline & Film Corp.
- Method of supplying gas to a process at stated rates and pressures. No. 2,296,349. Franklin Hunt to The Liquid Carbonic Corp.
- Process of separating silica from ores. No. 2,296,368. Anderson Ralston and Ervin W. Segebrecht to Armour and Company.
- Alkali metal halide flux for the fusion joining of magnesium members. No. 2,296,396. Mike Miller to Aluminum Company of America.
- Method for polymerizing isobutylene to viscous polymers of increased stability. No. 2,296,399. Michael Otto and Helmuth Schneider to Jasco Incorporated.
- Wood preserving composition comprising mixture of creosote and paraffin and one toxic material. No. 2,296,401. Hugh Perkins to The Western Union Telegraph Co.
- Polymerization of water insoluble organic compounds dispersed in an aqueous vehicle. No. 2,296,403. Archibald Renfrew and William Gates to Imperial Chemical Industries Limited.
- Process for conversion of carbon monoxide with hydrogen into hydrocarbons containing more than one carbon atom in the presence of a catalyst. No. 2,296,405. Arno Scheuermann and Eugen Marecek.
- Method of preparing rugged, active catalyst for use in catalytic reforming. No. 2,296,406. William Spicer and Rhea Watts to Standard Oil Development Company.
- Halomethyl aliphatic amino compounds and processes of making them. No. 2,296,412. Edgar Wolf to Heberlein Patent Corporation.
- Method of treating sulfate solutions of assorted metals including iron and aluminum sulfate to selectively precipitate a double basic sulfate of trivalent metals of the group consisting of aluminum and ferric iron, and alkali metal. No. 2,296,423. Louis Clark.
- Process of producing aqueous dispersions of poly-isobutylene. No. 2,296,427. Walter Daniel and Michael Otto to Jasco, Incorporated.
- Method of separating non-gaseous physical mixture of at least two organic compounds having different melting points into predetermined fractions. No. 2,296,456. August Schutte.
- Method of separating mixture of materials consisting of higher saturated and unsaturated aliphatic fatty acids and their glycerides into fractions which are respectively relatively more saturated and relatively more unsaturated. No. 2,296,457. August Schutte.
- Method of concentrating aqueous solution of one of the lower fatty acids. No. 2,296,458. August Schutte.
- Method of separating mixture of at least two aromatic compounds having different melting points. No. 2,296,459. August Henry Schutte.
- Manufacture of anhydrous di-calcium phosphate. No. 2,296,494. Edward Block.
- Manufacture of anhydrous monocalcium phosphate. No. 2,296,495. Edward Block.
- Preparation of abietic acid. No. 2,296,503. Richard Cox to Hercules Powder Co.
- Process of reducing metallic oxides. No. 2,296,522. James Hartley to Minerals and Metals Corp.
- Process for the biological and simultaneous purification of waste liquors and their slime. No. 2,296,523. Rene Henry.
- Treatment of flax straw. No. 2,296,524. Clark Heritage to Wood Conversion Co.
- Process for preparing highly condensed polyamides. No. 2,296,555. Emil Hubert and Hermann Ludewig.
- Liquid fuel for internal combustion engines. No. 2,296,558. Vaman Kokatnur to Autoxygen, Inc.
- Growth promoting media. No. 2,296,584. Herbert Stummeyer to Winthrop Chemical Co.
- Process for chlorinating, via substitution a partially chlorinated unsaturated hydrocarbon containing an olefinic linkage. No. 2,296,614. George Hearne to Shell Development Co.
- Electrolytic process of making photosensitive mosaic screens. No. 2,296,616. Lewis Koller to General Electric Co.
- Process of improving pulverulent fuels obtained by pressure extraction of coals. No. 2,296,668. William Hennicke.
- Hydroxylation of unsaturated halides. No. 2,296,687. Ludwig Rosenstein to Shell Development Co.
- Hydration of olefins. No. 2,296,696. Dale Babcock to E. I. du Pont de Nemours & Co.
- Laminated product comprising plurality of laminae of paper, fabric, wood, or like materials, and a layer of adhesive between said laminae. No. 2,296,712. Francis Grant and Thomas Tennyson to Lion Oil Refining Co.
- Colloidal Phosphate. No. 2,296,716. Fredrick Jelen to Monsanto Chemical Co.
- Process for the production of chlorine and a nitrate from nitrogen peroxide and a chloride. No. 2,296,762. Herman Beekhuis, Jr. to The Solvay Process Company.
- Process for production of a metal nitrate and chlorine which comprises reacting nitric acid and a metal chloride. No. 2,296,763. Herman Beekhuis, Jr. to The Solvay Process Co.
- Process of obtaining sterols from sterol-containing vegetable oil. No. 2,296,794. Norman Kruse, Wilmer Obert, and Wendell Mann, Henry Kraybill, and Kenneth Eldridge to Central Soya Co., Inc. and to Purdue Research Foundation.
- Preparation of unsaturated alcohol esters. No. 2,296,823. Maxwell Pollack and Albert Chenicek to Pittsburgh Plate Glass Co.
- Process preparing pentaerythritol with a melting point greater than 250° C. No. 2,299,048. Joseph A. Wyler and Edwin A. Wernett to Trojan Powder Co.
- Catalytic oxidation of ketones to acids. No. 2,299,013. Walter Fleming to General Aniline & Film Corp.
- Symmetrical disubstituted alkylol guanidines. No. 2,299,012. Walter P. Ericks and James H. Williams to American Cyanamid Co.
- Method of titration to determine the caustic strength of solutions containing caustic and aluminates. No. 2,298,976. Clifford A. Shillinglaw and Max Levine to American Bottlers of Carbonated Beverages.
- Method of intimately combining phosphor base material and phosphor activator. No. 2,298,948. Humboldt W. Leverenz to Radio Corp. of America.
- Modification of fatty oils to improve their drying properties. No. 2,298,919. Laszlo Auer.
- Modification of fatty oils to improve their drying properties. No. 2,298,918. Laszlo Auer.
- Modification of fatty oils to improve the drying properties. No. 2,298,917. Laszlo Auer.
- Process for improving by at least 25% the impact strength of oriented synthetic linear polyamide filament. No. 2,298,868. Willard Catlin to E. I. du Pont de Nemours & Co.
- Process for the production of beryllium oxide or hydroxide. No. 2,298,800. Ralph McKee.
- Alpha haloacrylonitriles. No. 2,298,739. Joy Lichty and James K'Ianni to Wingfoot Corp.
- Polymethine base. No. 2,298,732. Leslie Brooker and Frank White to Eastman Kodak Co.
- Process for removing dissolved silica from water. No. 2,298,707. Otto Liebknecht to the Permutit Co.
- Process of producing oil-soluble 2,4,4-tri-alkylated mono-hydroxy phenol olefin condensation product. No. 2,298,660. Donald Stevens and William Gruse to Gulf Oil Corp.
- Secondary  $\beta$  phenyl propyl amines and pharmaceutical compositions thereof. No. 2,298,630. Robert Shelton to The Wm. S. Merrell Co.
- Method for producing bituminous asphalt emulsion of low viscosity. No. 2,298,612. Donald Carr to Union Oil Co. of California.
- Method of decomposing ozone in gaseous medium. No. 2,298,607. William Anderson, Jr. to Hanovia Chemical and Mfg. Co.
- Capillary-active mononuclear heterocyclic compound. No. 2,298,533. Winfrid Hentrich and Erik Schirm to "Unichem" Chemikalien Handels A.-G.
- Method of conditioning fatty acid stock to promote the formation of crystals having good filtering characteristics in a solvent. No. 2,298,501. Latimer Myers and Victor Muckerheide to Emery Industries, Inc.
- Process for producing anhydrous magnesium sulfate. No. 2,298,493. Walter MacIntire to American Zinc, Lead & Smelting Co.
- Condensation of polyalkylol guanidine salts. No. 2,298,473. Walter Ericks to American Cyanamid Co.

U. S. Chemical Patents

Off. Gaz.—Vol. 542, Nos. 3, 4—Vol. 543, Nos. 1, 2, 3—p. 386

- Process of preparing 4-methyl hydroxy coumarins by reaction of phenol and acetoacetic ester in presence of condensation catalyst. 2,298,459. Albert Boese, Jr., to Carbide & Carbon Chemicals Corp.
- Method of regenerating carbonized catalyst mass. 2,298,442. Kenneth Watson and Robert Smith to Universal Oil Products Co.
- Absorbent material comprising mass of comminuted cellulosic fibers and water-soluble and expandable organic gum. 2,298,424. Frederick Schrelber to Johnson & Johnson.
- Cycloalkanyl peroxide and process of producing the same. 2,298,405. Nicholas Milas to Research Corp.
- Continuous process for production of acids by treatment of oxidizable oxygen-containing compounds, alcohols, aldehydes, and ketones. 2,298,387. William Kenyon and George Heyl to Eastman Kodak Co.
- Vacuum distillation from moving surfaces and apparatus therefor. 2,298,377. Kenneth C. D. Hickman to Distillation Products, Inc.
- Manufacture of nitro compounds. 2,298,375. Rudolph Hasche to Eastman Kodak Co.
- Manufacture of acetic anhydride. 2,298,354. Henry Dreyfus to Celanese Corporation of America.
- Method of preparing alkyl catechols. 2,298,291. Walter Hartung to Sharp & Dohme, Inc.
- Reductive alkylation. 2,298,284. William Emerson.
- Manufacture of modified organic isocolloid materials. 2,298,270. Laszlo Auer.
- Manufacture of modified organic isocolloids. 2,298,271. Laszlo Auer.
- Production of nitriles. 2,298,231. Albert Rainsford and John Pearson to General Chemical Co.
- Process for the preparation of an organic ester of a b-(alkoxyalkoxy) alcohol. 2,298,186. John Woodhouse and Kenneth Walker to E. I. du Pont de Nemours & Co.
- Manufacture of diphenylacetophenone. 2,298,169. Robert Robinson and Donald Mercer to Imperial Chemical Industries, Ltd.
- Inorganic substituted acetic acid. 2,298,138. Donald Loder to E. I. du Pont de Nemours & Co.
- Treatment of wells. 2,298,129. Carroll Irons to The Dow Chemical Co.
- Purification of aqueous hydrogen peroxide containing a minor proportion of nonvolatile impurities. 2,298,064. Robert MacMullin to The Mathieson Alkali Works.
- Interpolymer of dimethyl itaconate and ethyl meta-acrylate. 2,298,039. Gaetano to General Electric Company.
- Cyclic acetals. 2,297,921. Murray Senkus to Commercial Solvents Corp.
- Substituted phenyl malonic acid and derivative thereof. 2,297,911. Joseph Niederl.
- Method of making hardened composite articles. 2,297,878. Francis Denneen and William Crankshaft Co.
- Dialdehyde compound and process for making same. 2,297,864. Hans Beck to Heberlein Patent Corp.
- Dewaxing solvent and solvent recovery. 2,297,839. James Montgomery and Robert Henry to Phillips Petroleum Co.
- Production of nitriles. 2,297,811. Emil Stocker to J. R. Geigy A.G.
- Method of partial freezing out of liquid. 2,297,786. Erik Lindblom.
- Hydrogenation of alkyl arby ketones. 2,297,769. Vladimir Ipatieff and Vladimir Haensel to Universal Oil Products Co.
- Anode production. 2,297,766. Richard Hull to E. I. du Pont de Nemours & Co.
- Imidazole derivatives and process of making same. 2,297,760. Charles Graenacher and Jules Meyer to Society of Chemical Industry in Basle.
- Stabilization of nitrated carbohydrates. 2,297,734. Joseph Wyler and Richard Boyd to Trojan Powder Co.
- Ethers of substituted phenylphenols. 2,297,728. Fred Taylor and Clarence Moyle to The Dow Chemical Co.
- Treatment of styrene type compounds. 2,297,724. Frank Soday to The United Gas Improvement Co.
- Treatment of styrene type compounds. 2,297,723. Frank Soday to The United Gas Improvement Co.
- Treatment of styrene type compounds. 2,297,722. Frank Soday to The United Gas Improvement Co.
- Process of protecting boiler metal against embrittlement which comprises introducing a phlobatannin into the boiler water in an amount adequate for retarding the embrittlement producing tendency for other substances therein. 2,297,670. Wilburn Schroeder and Abraham Berk.
- Separation of feldspar from quartz. 2,297,688. Robert O'Meara to Government of the United States of America.
- Concentrating langbeinite. 2,297,664. Francis Tartaron, Allen Cole, and James Duke to Phosphate Recovery Corp.
- Slow-acting monocalcium phosphate and process of manufacturing the same. 2,297,630. Charles Milligan to The American Agricultural Chemical Co.
- Process for manufacture of carboxylic acids of the cyclopentanopolyhydro-phenanthrene-series and their derivatives. 2,297,580. Rupert Oppenauer to Roche-Organon, Inc.
- Manufacture of chlorinated aliphatic hydrocarbons. 2,297,564. Frederick Kirkbride to Imperial Chemical Industries, Ltd.
- Tertiary amines. 2,297,531. Louis Bock to Rohm & Haas Co.
- Process for production of  $\alpha$ -Caprolactam. 2,297,520. Georg Wiest and Heinrich Hopff.
- Process for manufacture of diolefins from alcohols and aldehydes. 2,297,424. Alessandro Maximoff and Oberto Canonici.
- Method of producing steroid ketones from steroid alcohols. 2,297,367. Ebenezer Reid to The Chemical Foundation, Inc.
- Conjoint polymerization of dicarboxylic acids and olefinic compounds. 2,297,351. Howard Gerhart to Pittsburgh Plate Glass Co.
- Method of making adhesives and product thereof. 2,297,341. Davis Miller.
- Method of making adhesives and product thereof. 2,297,340. Davis Miller.
- Process granulation of crystalline materials. 2,297,300. John O. Hardesty and Wm. H. Ross to Claude R. Wickard.



**FREE!** Write for this new catalog No. 26-C describing and giving prices on more than 65 Special Chemicals which our manufacturing division is equipped to supply.

# Special CHEMICALS Include

- Ammonium Thiosulfate Crystals
- Chlorohydroquinone
- Diacetylaminoozotoluene
- Diphenyl Disulfide
- Phenyl Mercuric Oleate
- Pyrocatechin, C. P.
- Sodium Bismuth Iodide
- Sodium Cyanate

Producers, converters and processors of chemicals, more and more, are turning to Edwal for materials which are difficult to locate. In addition to the many items regularly listed, Edwal also manufactures chemicals to special order. Write for quotations on your requirements.

**The EDWAL** Manufacturing Division  
*Laboratories, Inc.*  
732 FEDERAL STREET CHICAGO, ILL.

## U.S. Chemical Patents

Off. Gaz.—Vol. 542, Nos. 3, 4—Vol. 543, Nos. 1, 2, 3—p. 387

Treatment of oil, gas and water mixtures. 2,297,297. Jay P. Walker to Guy O. Marchant and C. G. Wells.  
Process for producing pour inhibitors for wax containing oils. 2,297,292. Garland H. B. Davis and Charles O. Swoope to Standard Catalytic Co.  
Process for oxidizing nitrosyl chloride. 2,297,281. Herman A. Beekhuis, Jr. to The Solvay Process Co.  
Protein composition and foam abatement. 2,297,276. Francis O. Atwood to Atlantic Research Associates, Inc.  
Process for purification of solutions that serve as generators for per-compounds. 2,297,252. Heinrich Schmidt.  
Manufacture of industrial gases. 2,297,227. Karl Koller and Zsigmond Galocsy.  
Ethers of hydroxyalkyl amine bases, their salts and quaternary ammonium compounds. 2,297,221. Richard Huttenlocher.  
Process for rendering alkaline sludge from sewage putrefactible. 2,297,195. Karl Behringer.  
Method particle size grading and product. 2,297,169. Donald W. Ross.  
Synthesis of carbon-halogenated alkyl amines. 2,297,147. Henry B. Hass and Hal C. Huffman to Purdue Research Foundation.  
Protein composition and foam abatement. 2,297,125. Francis O. Atwood to Atlantic Research Associates, Inc.  
Phosphor comprising a matrix of alkaline earth metal silicate activated with europium and fluorescing in the color range of yellow, green, blue, violet when excited by 3650 A. radiation. 2,297,108. Alfred H. McKeag and Peter W. Ranby to General Electric Co.  
1-methylpentyl-p-aminobenzoate. 2,297,080. Jorace A. Shonle and Wilbur J. Doran to Eli Lilly Co.  
Reaction of nonconjugated olefinic compounds with  $\alpha$ - $\beta$ -unsaturated carbonylic compounds. 2,297,039. Johannes A. van Melsen to Shell Development Co.  
Process of crystallizing urea. 2,297,034. Anton Strzyzewski and Hans J. Froehlich.  
Diarylsulphone derivatives. 2,297,024. Paul Pohls and Fritz Mietzsch to Winthrop Chemical Co., Inc.  
Distillation of organic liquids. 2,297,004. Alan P. Lee.  
Production of unsaturated aliphatic aldehydes. 2,296,958. Herbert M. Stanley and Gregoire Minkoff to The Distillers Co.  
Process of recovering by-products of black liquor. 2,296,952. John Ross and Joseph H. Percy to Colgate-Palmolive-Peet Co.  
Water-dispersible lecithin comprising commercial lecithin free of oil or fatty material dissolved in an alkyl ether of diethylene glycol. 2,296,933. Stroud Jordan.  
Device for dewatering or cleansing and dewatering fibrous materials. 2,296,897. Joseph Billing and David R. Johnston to Celanese Corp. of America.  
Making artificial structures from xanthates. 2,296,857. Leon Lillienfeld by Antonie Lillienfeld administratrix to Lillienfeld Patents, Inc.  
Method of earth exploration. 2,296,852. William L. Horner to Core Laboratories, Inc.  
Acidified diatomaceous earth filter aid. 2,296,850. Milo A. Harrison to The Dicalite Co.  
Finishing Process. 2,296,840. Alexander J. Faust.  
Vinyl Esters and vinyl ester interchange process. 2,296,837. Loring Coes, Jr., to E. I. du Pont de Nemours & Co.

## Metals, Alloys

Process for improving resistance of ferrous metals to corrosion. No. 2,295,545. Wilfred Clifford and Henry Adams to Parker Rust Proof Co.  
Alloy for deoxidizing steel and iron. No. 2,295,706. George Comstock to The Titanium Alloy Mfg. Co.  
Preparation of finely divided metalliferous materials for sintering. No. 2,295,611. Percy Steffensen to Bethlehem Steel Co.  
Method of coating a light metal article of magnesium and its alloys. No. 2,295,642. Joseph Hanawalt and Charles Nelson to The Dow Chemical Co.  
Method of producing a coating on article of magnesium and its alloys. No. 2,295,843. Joseph Hanawalt and Charles Nelson to The Dow Chemical Co.  
Process of removing gold from lead, tin and alloys. No. 2,296,196. Gustave Behr and Lloyd Schroeder to National Lead Co.  
Process of and apparatus for thermochemically working ferrous metal. No. 2,296,376. Roger Babcock and Edward Meincke to The Linde Air Products Co.  
Manufacture of metal products. No. 2,296,498. Herman Brassert to Minerals and Metals Corp.  
Copper-zinc alloy. No. 2,296,706. Michael Corson to The Beryllium Corp.  
Electrolytically deposited sheet of iron capable of maintaining its fine-grained electrolytic structure when heated. No. 2,296,757. John Young to Plastic Metals, Inc.  
Electroplating. 2,299,054. Wm. J. Harshaw and Kenneth E. Long to The Harshaw Chemical Co.  
Iron oxide weighting material for drilling muds. 2,298,984. Thane K. Stinson and Lorenz K. Ayers to National Lead Co.  
Method of joining metal body having nickel surface to glass body. 2,298,974. George R. Shaw to Radio Corp. of America.  
Method of preparing dust-free flakes of vanadic oxide. 2,298,465. Leo Clapsalle to Carbide and Carbon Chemicals Corp.  
Machining metals by cutting metal in presence of aqueous solution of phosphoric acid radical. 2,298,419. Leroy Salfsberg to Ivers-Lee Co.  
Method of phosphate coating ferrous metal surfaces. 2,298,312. Gerald Romig to American Chemical Paint Co.  
Process of flotation separation of ore. 2,298,281. Hoyt Corley, Anderson Ralston, and Ervin Segebrecht to Armour & Co.  
Pen nib of gold alloy containing up to fifteen (15) per cent of a metal taken from the group comprising manganese and palladium. 2,298,261. William Mittendorf and Max Stumbeck to Baker & Company, Inc.  
Alloy consisting of 0.2-3% antimony, 0.2-5% zinc, 2-7% tin, and balance lead. 2,298,237. Albert Smith, Jr., and Paul Beck to American Smelting and Refining Co.  
Solution of vanadium from vanadium oxide mixtures. 2,298,091. William Cooper, Jr., and Alver Dunbar to Allied Chemical & Dye Corp.

Method of melting copper. 2,298,055. Philip Hulme and Robert Ghelardi to International Smelting and Refining Co.  
Increasing ink respectively of metallic surfaces. 2,297,929. Leonard Wise to E. I. du Pont de Nemours & Co.  
Alloy, resistant to wear and abrasion and suitable for use as a cutting tool. 2,297,687. Charles Burgess and William Forgeng to Haynes Stellite Co.  
Chromium-vanadium-iron alloy cutting tool. 2,297,686. Charles Burgess and William Forgeng to Haynes Stellite Co.  
Heat cast refractory consisting of zirconia, chromic oxide, alumina and iron oxide, and in which any silica present amounts to less than 4% by weight and the mols of iron oxide are less than the sum of the mols of the alumina plus chromic oxide. 2,297,546. Theodore Field to Corhart Refractories Co.  
Method for brazing high carbon steel. 2,297,357. Floyd Kelley to General Electric Co.  
Flotation feed control. 2,297,311. Harry L. Mead and Ernest J. Maust to American Cyanamid Co.  
Process for roasting ore. 2,297,307. Urban S. Lauber to General Chemical Co.  
Plating of aluminum. 2,297,241. Leonhard Perner.  
Stabilized mineral matter and method preparing same. 2,297,063. Claude L. McKesson and Vilas E. Watts to American Bitumuls Co.  
Aluminum alloy. 2,296,866. Cresap M. Moss to Chicago Development Co.  
Process for beneficiation of manganese ores. 2,296,841. Daniel Gardner.

## Paint, Pigments

Process for preparation of dry pigments suitable for incorporation into oil paint vehicles by simple mixing. No. 2,296,066. Clifford Sloan to E. I. du Pont de Nemours & Co.  
Dispersion of hydrophile pigments. No. 2,296,382. Earl Fischer and Eugene Gluck and William Reynolds to Interchemical Corp.  
Method of dispersing hydrophilic pigments. No. 2,296,383. David Gans to Interchemical Corp.  
Silicate treated titanium pigment. No. 2,296,618. Gordon Patterson to E. I. du Pont de Nemours & Co.  
Process for producing a pigment of improved surface hiding power. No. 2,296,636. Marion Hanahan to E. I. du Pont de Nemours & Co.  
Process for producing an extender of improved surface hiding power. No. 2,296,637. Marion Hanahan to E. I. du Pont de Nemours & Co.  
Process for producing a colored pigment of improved surface hiding power. No. 2,296,638. Marion Hanahan to E. I. du Pont de Nemours & Co.  
Process for producing pigment materials of improved surface hiding power and low water sensitivity. No. 2,296,639. Marion Hanahan to E. I. du Pont de Nemours & Co.  
Composite metal pigment of high lustre and good "leafing" properties. 2,299,034. Richard S. Reynolds to Reynolds Metals Co.  
Bituminous paint for protecting metallic surfaces against corrosion. 2,298,793. August Holmes to Standard Oil Development Co.  
Titanium solution production. 2,298,032. L'Roche Bousquet and Maxwell Brooks to General Chemical Co.  
Titanium dioxide pigment and method of making same. 2,297,523. Benjamin Allan and William Land to American Zirconium Corp.  
Luminescent composition. 2,297,033. Paul Stahr to Albert E. Schwartz.  
Pigment compound comprising lead oxide, silicon, dioxide, titanium dioxide and water, formed by first reacting fused anhydrous lead silicate with water and then reacting the hydrated lead silicate thus formed with titanium dioxide. 2,296,963. Forrest L. Turbett and George J. Vahrenkamp to Eagle-Picher Lead Co.

## Paper and Pulp

Process for reclaiming wax from waste waxed paper. 2,298,943. Perlle E. Howard.

## Petroleum

Catalyst for alkylation of organic compounds. No. 2,295,608. Robert Ruthuff.  
Catalytic conversion of hydrocarbons. No. 2,295,730. Henry Grote to Universal Oil Products Co.  
Process for producing anti-knock motor fuel from substantially saturated hydrocarbon oil. No. 2,295,808. Raymond Schaad to Universal Oil Products Co.  
Process for low temperature separation of hydrocarbon gas mixtures compressed to separation pressure and containing propane moisture. No. 2,295,809. Paul Schuffan.  
Cutting oil. No. 2,296,037. Gus Kaufman to The Texas Company.  
Hydrocarbon fuel for use in internal combustion engine. No. 2,296,069. Guy Talbert and Everett Blizzard to Allied Chemical & Dye Corp.  
Process for acid treating both straight run and cracked hydrocarbon oils to remove sulfur and gum-forming constituents. No. 2,296,096. Russell Dorach to The Texas Co.  
Stable breaking-in oil. No. 2,296,342. Peter Gaylor and Emile Baldeschwieler to Standard Oil Development Co.  
Process for the production of normally liquid saturated hydrocarbons under alkylation conditions. No. 2,296,370. Ober Slotterbeck to Standard Oil Development Co.  
Process for production of paraffinic motor fuels of improved octane number. No. 2,296,371. Ober Slotterbeck and Raphael Rosen to Standard Oil Development Co.  
Halogenated meta-dioxanes. No. 2,296,375. Erving Arundale and Louis Mikeska to Standard Oil Development Co.  
Process of converting hydrocarbons into fractions boiling within the gasoline range. No. 2,296,386. Charles Hemminger to Standard Oil Development Co.  
Method of cracking hydrocarbon oils. No. 2,296,395. Wilhelm Michael and Adam Buettner.

Additional Patents on Petroleum, Resins, Rubber, and Textiles for the above volumes will be given next month.

## Abstracts of Foreign Patents

Collected from Original Sources and Edited

Those making use of this summary should keep in mind the following facts:

Belgian and Canadian patents are not printed. Photostats of the former and certified typewritten copies of the latter may be obtained from the respective Patent Offices.

English Complete Specifications Accepted and French

patents are printed, and copies may be obtained from the respective Patent Offices.

In spite of present conditions, copies of all patents reported are obtainable, and will be supplied at reasonable cost.

This digest presents the latest available data, but reflects the usual delays in transportation and printing. Your comments and criticisms will be appreciated.

### CANADIAN PATENTS

Granted and Published October 21, 1941.

Continuous process for recovery of viscous oils of high molecular weight from undesirable solids of a specific gravity greater than one. No. 400,050. Charles Gower.

Continuous process for the separation of viscous oils or other desirable hydrocarbons of high molecular weight from undesirable constituents of high specific gravity. No. 400,051. Charles Gower.

A collapsible-conduit type valve. No. 400,052. Gail G. Grigsby.

Process of making egg substitute comprising boiling gently linseed in water for a sufficient time to extract a substantial proportion of the oil content, straining the resulting liquid, and dissolving therein a small proportion of a jellying agent. No. 400,056. Frederick Edwin May.

Method of preparing sodium aluminum sulfate with a low fluorine content suitable for use as a baking powder ingredient. No. 400,076. American Cyanamid & Chemical Corporation. (David Lurie.)

Process of producing ammonium carbonate which comprises contacting non-gaseous  $\text{CO}_2$  with liquid ammonia under substantially anhydrous conditions. No. 400,079. American Cyanamid Company. (Robert B. Booth.)

Method of producing ammonium dithiocarbamate which includes reacting liquid carbon bisulfide with liquid ammonia and converting the yellow product of the reaction to ammonium dithiocarbamate by permitting it to stand in contact with an organic liquid in which it is substantially insoluble. No. 400,081. American Cyanamid Company. (William H. Hill and Donovan J. Salley.)

Method of producing ammonium thiocyanate from liquid carbon bisulfide and liquid ammonia by reacting the materials at temperatures above  $35^\circ\text{C}$ , evaporating the liquid product and recovering the solid ammonium thiocyanate. No. 400,082. American Cyanamid Company. (William H. Hill.)

Method of recovering crystals of ammonium thiosulfate from aqueous solutions thereof which includes the step of introducing ammonia into the solution until crystals of ammonium thiosulfate are precipitated therefrom. No. 400,083. American Cyanamid Company. (William H. Hill.)

Preparing dispersions of a polymerized organic compound in a liquid vehicle by a method including emulsifying the polymerizable organic compound in a nonsolvent liquid vehicle. No. 400,094. Canadian Industries Limited. (Barnard M. Marks.)

Process of preparing a low molecular weight polymer of a butyl methacrylate. No. 400,095. Canadian Industries Limited. (Daniel E. Strain.)

Process of preparing aliphatic organic carboxylic acid by oxidizing oleic acid with ten mols per mol of oleic acid of 88% nitric acid and 0.1% ammonium vanadate at  $25-35^\circ\text{C}$ . for two days. No. 400,096. Canadian Industries Limited. (Ellsworth K. Ellingboe.)

Process comprising catalytically hydrogenating adiponitrile in the vapor phase in the presence of an excess of ammonia and of hydrogen. No. 400,097. Canadian Industries Limited. (Wilbur A. Lazier.)

Preparing 1,4-dihalogen butane by reacting tetramethylene oxide with a hydrohalogen acid in the presence of a dehydrating acid, said reaction being carried out at a substantially atmospheric pressure and under reflux. No. 400,098. Canadian Industries Limited. (Oliver W. Cass.)

Process comprising emulsifying chloro-2-butadiene-1,3 in an aqueous medium and then polymerizing the dispersed compound in the presence of sulfur. No. 400,099. Canadian Industries Limited. (Arnold M. Collins.)

Process of making plastic, rubber-like materials by polymerizing chloro-2-butadiene-1,3 in presence of sulfur and then plasticizing the polymerized material. No. 400,100. Canadian Industries Limited. (Mortimer A. Youker.)

Process of distilling glycerol from a crude solution thereof. No. 400,101. Canadian Industries Limited. (Ralph F. Peterson.)

Manufacture of ammonium sulfate by a method including the step of adding to the liquor in the saturator a mixture of an oil and a wetting agent which will not be attacked by the other compounds present. No. 400,102. Canadian Industries Limited. (Geoffrey Ogden.)

Manufacture of ammonium sulfate in a saturator by a method including neutralizing at least a portion of the mother liquor, allowing the neutralizing liquor to stand, and separating the liquor from the impurities which rise to the surface, and reutilizing the separated mother liquor. No. 400,103. Canadian Industries Limited. (John Bell.)

Process of spraying coating compositions at elevated temperatures which comprises passing a preheated coating composition through an electrically heated flexible hose, whereby the temperature of

said coating composition is substantially maintained, to a spray gun and then to the work. No. 400,104. Canadian Industries Limited. (Earle C. Pitman.)

Producing nitrocellulose-coated rubberized sheet material by applying to the surface of rubberized sheet material at least one bonding coat comprising polyvinyl phthalate and subsequently applying thereto a nitrocellulose lacquer. No. 400,105. Canadian Industries Limited. (John H. McGill and Harold J. Tattersall.)

Process for making plastic rubber-like materials by polymerizing butadiene-1,3 and then plasticizing the polymerized material. No. 400,106. Canadian Industries Limited. (Howard Warner Stark weather and Mortimer Alexander Youker.)

Process of bringing a fluid reaction mixture comprising essentially ammonia, hydrogen, and an aliphatic nitrile containing at least 6 carbon atoms continuously into contact with a stationary, solid hydrogenation catalyst whereby to effect a conversion of the nitrile to an amine, the proceeds being characterized by the fact that the nitrile is exposed in thin layers to contact with the surface of the catalyst. No. 400,107. Canadian Industries Limited. (Wilbur A. Lazier.)

Making plastic rubber-like materials by polymerizing a diene hydrocarbon in the presence of sulfur. No. 400,108. Canadian Industries Limited. (Howard W. Starkweather and Mortimer A. Youker.)

Explosive composition comprising ammonium nitrate coated with zinc tetramine nitrate. No. 400,110. Canadian Industries Limited. (Thorvald W. Hauff and Harrison H. Holmes.)

Plastic composition comprising a polyvinyl formal resin and, as a plasticizer therefor, an alkyl phthalate of the formula  $\text{C}_6\text{H}_4(\text{COOR})_2$ , wherein R is a saturated alkyl chain of 6-8 carbon atoms, inclusive. No. 400,111. Canadian Industries Limited. (David Adams Fletcher.)

Method of incorporating a non-diffusing coupling compound in a photographic layer by condensing an aromatic acid chloride with an aromatic diamine, converting the resulting compound to a water-soluble salt and mixing it with an aqueous gelatine emulsion, treating the emulsion with a precipitating agent for the coupling compound, and coating the gelatine emulsion on a rigid support. No. 400,112. Canadian Kodak Company, Ltd. (Karl Schinzel.)

Process of directly oxidizing olefins to olefine oxides in the presence of an active surface catalyst essentially comprising silver together with at least one of the group consisting of the peroxides, oxides and hydroxides of barium, strontium and lithium. No. 400,116. Carbide and Carbon Chemicals Limited. (Raymond W. McNamee and Charles M. Blair.)

Process of distilling fatty acids from a body of liquid undergoing distillation in the lower portion of a still provided with indirect heating means. No. 400,118. Colgate-Palmolive-Peet Company. (Martin H. Ittner.)

Method of manufacturing a tubular article for use in surgical situations which consists in winding animal material spirally in one direction around a mandrel and then back in reverse direction spirally to form a tube, and when the tube becomes self-sustaining, removing the mandrel. No. 400,120. Davis & Geck, Inc. (Arthur Bowen.)

Flat non-burnishing coating composition comprising cellulose nitrate and a flattening agent consisting essentially of powdered commercial silica gel. No. 400,122. E. I. du Pont de Nemours & Co., Inc. (John W. Clough.)

Process for the manufacture of compounds for protection against moths comprising, in one instance, condensing one mol of N-benzylisotiazol-5-sulfonic acid with 2 molecular proportions of para-chloro-phenol. No. 400,125. J. R. Geigy A. G. (Henry Martin, Otto Neracher and Walter Stambach.)

An agent for combating pests comprising, in one instance, at least one aliphatic aminoketone as reaction product from methylisobutylketone, formaldehyde and diethylamine. No. 400,126. J. R. Geigy A. G. (Jules Treboux.)

Emulsion for photographically producing positive gelatine reliefs comprising silver halide and gelatine, the ratio by weight of silver to gelatine being smaller than 1:4. No. 400,128. General Aniline and Film Corporation. (Walter Frankenburg, Max Herbst, and Herman Schulz.)

Liquid tire cover for use on the outer side-walls of vulcanized pneumatic tire casings for improving the appearance thereof. No. 400,130. R. M. Hollingshead Corporation. (Thomas J. Bagley and Victor M. Mantz.)

Luminescent material consisting, in one instance, of manganese activated beryllium ortho-germanate cadmium meta-germanate. No. 400,136. Radio Corporation of America. (Humboldt W. Leverenz.)

Concrete curing compound comprising an albino asphalt containing from 14 to 28% finely-divided, light colored, non-colloidal mineral filler and from 6 to 12% titanium dioxide. No. 400,144. Shell Development Company. (Stanley S. Sorem.)

## Foreign Chemical Patents

### Canadian Patents—p. 87

Process of producing condensation products of thiourea and formaldehyde derivatives. No. 400,146. Society of Chemical Industry in Basel. (Charles Graenacher, Richard Sallmann and Otto Allbrecht)

Process of making textile which comprises commingling before spinning non-adhesive textile fibers and a minor proportion of at least one type of potentially adhesive fibers, spinning the commingled fibers into a single yarn, activating potentially adhesive fibers sufficiently to render them adhesive but not sufficiently to render the yarn formed therefrom nonporous, and subsequently deactivating whereby a textile is obtained having increased tensile strength and resistance to wear and laundering, and untwisting prevented without substantially altering the original appearance and porosity. No. 400,152. Sylvania Industrial Corporation. (Roger Wallach.)

Method of making stabilized textile which comprises mixing together, prior to the completion of spinning, at least two types of fibers of textile-making length one of which is a synthetic resin fiber having an inherent tackiness upon heating, spinning said mixture of fibers into yarn, subsequently rendering said resin fibers tacky by heat to effect a strong and substantially permanent adhesion between the fibers without rendering the textile nonporous. No. 400,152. Sylvania Industrial Corporation. (Carleton S. Francis, Jr.)

Decorative material comprising a plurality of metallic wires twisted together and a web of flexible material spiralled between the wires and having a multiplicity of overlapping folds, said web having a length 5 to 20 times the length of the wires. No. 400,153. Sylvania Industrial Corporation. (Edward P. Franke.)

Surgical tape comprising a ribbon of submucous animal intestinal tissue. No. 400,168. Davis & Geck, Inc. (Allen Rogers.)

Transparent, flexible and pliable sheet proof against water, organic solvents and mineral and vegetable oils, comprising a cellulose hydrate structure having a water and glycerine content combined with a polymerized heat converted resinous coating. No. 400,174. Emil Czapiek.

Transparent flexible crease-resisting and odorless sheet of cellulose hydrate coated with a plurality of layers, one layer comprising a main amount of chlorinated paraffin, a lesser amount of chlorinated rubber and a still lesser amount of resin, said layers bonded to each other forming an article which has at least one layer tear-resisting and waterproof. No. 400,175. Emil Czapiek.

**Granted and Published October 28, 1941.**

Method for the reduction of oxides such as oxides of metals and oxides of metalloids. No. 400,190. Hans Gallusser.

Metallurgical furnace having a regenerative chamber, a tunnel under the furnace from said chamber, checkerwork providing smooth-walled vertical passages through said chamber to a height above its base, said base being free from transverse obstructions and said tunnel being of sufficient height and width to permit of cleaning the entire base of said chamber from the tunnel. No. 400,198. Lewis Byron Lindemuth.

Making decalcomania papers by applying a coating of decalcomania adhesive to one side of a sized backing sheet of paper, and applying to said sheet a solution of a penetrating agent while preventing said agent from increasing the penetration of said adhesive into said sheet. No. 400,201. John MacLaurin Ware.

Cigarette paper making method comprising incorporating fire resistant fibers adapted to impart additional support to the ash of the cigarette in an amount of from two and one-half to eight per cent by weight of the finished paper. No. 400,215. Edward Oldroyd Whiteley.

Producing dry aluminum hydroxide containing substance which has substantially acid-neutralizing properties of colloidal aluminum hydroxide by evaporating to substantial dryness a suspension of colloidal aluminum hydroxide in the presence of a carbohydrate, the ratio of carbohydrate to aluminum hydroxide being at least 1:4. No. 400,217. Alba Pharmaceutical Company, Inc. (Kennard F. Stephenson).

Producing fine aluminum hydrate from an alkaline aluminous solution by partially neutralizing said solution at a rapid rate while maintaining the temperature below about 40°C. to effect a precipitation of aluminum hydrate, aging the precipitated aluminum hydrate in an alkaline solution at a temperature below 40°C., and subsequently digesting aluminum hydrate at an elevated temperature. No. 400,218. Aluminum Company of America. (James R. Wall).

Treating metallurgical dust containing arsenic oxide and sulfur trioxide by agitating such dust in the presence of water to form a flotation reagent and subjecting the dust with said reagent to a froth flotation operation to float and concentrate the arsenic oxide therein. No. 400,224. Beattie Gold Mines (Quebec) Limited. (Frederick E. Archibald).

Preparing calcined gypsum by reducing gypsum rock to substantially coarse particles, calcining said reduced rock under time and temperature conditions sufficient to calcine a substantial part of the exterior only of said particles to form calcium sulfate hemihydrate, grinding the product, and separating the calcined portion from uncalcined calcium sulfate dihydrate in said ground product. No. 400,229. Canadian Gypsum Company Limited. (Manvel C. Dailey).

Preparing oil-in-water emulsions having about a 25% to 60% non-volatile content and which is of paste-like consistency which comprises preparing a cellulose derivative solution in a water-immiscible and water-inert organic solvent, preparing a water dispersion of two colloidal dissolved emulsifying agents, one of which is of the polar type, and the other of which is gum ghatti, and combining the said cellulose derivative solution and the said dispersion of emulsifying agents by low speed mixing. No. 400,231. Canadian Industries Limited. (Alfred Dreyling and William W. Lewers).

Film-forming composition comprising a cellulose derivative and, as a plasticizer, a polyaryl derivative or an amide of a fatty acid containing 6 to 18 carbon atoms and which is not a moisture-proofing agent per se, said cellulose derivative being selected from the class which consists of cellulose esters, cellulose ethers and cellulose ether-esters. No. 400,232. Canadian Industries Limited. (Robert B. Flint).

Laminated glass which at 0°, 70° and 120° F. will withstand the impact of a ½-pound steel ball dropped at a distance of 15 feet. No. 400,233. Canadian Kodak Company, Ltd. (Frederick B. Conklin and Carl J. Malm).

Fused carbide composition containing boron carbide as a major constituent and also containing substantial portion of another carbide. No. 400,237. The Carborundum Company. (John A. Boyer and Carl G. Rose).

Treating free flowing, solid, carbonaceous fuel for preventing or reducing its dustiness, which consists in applying to the pieces of fuel, while maintaining their free flowing character, a dust-preventive film coating comprising an aqueous dispersion of bentonite in gel form. No. 400,238. Carter Coal Company. (Lincoln T. Work and Rudolph E. Zetterstrand).

Injection molding of thermoplastic material by forcing said material through a confined heating space and about a zone of high magnetic permeability within said heating space, inducing an oscillating magnetic flux through said zone so as to heat said zone by induced electric currents and hysteresis and controlling the path of said flux through said zone so as to effect spatial control of the heat imparted said thermoplastic material. No. 400,239. Celluloid Corporation. (Dimitri G. Soussloff).

Process comprising dispersing chloro-2-butadiene-1, 3 in an acid aqueous medium, polymerizing the dispersed chloro-2-butadiene-1, 3 in the presence of a small amount of thioglycolic acid and a small amount of hydrogen sulfide, and adding a small amount of phenyl-beta-naphthylamine and a small amount of para-nitro-thio phenol to the resulting dispersion. No. 400,244. E. I du Pont de Nemours & Co. (Herbert W. Walker).

Production of synthetic tans made by condensing phenol monosulfonic and naphthalene monosulfonic acid. No. 400,249. J. R. Geigy A.G. (Robert Biedermann).

Producing a photographic multicolor picture by exposing a photographic material having several layers of silver halide emulsion containing dyestuff components fast to diffusion and being differently color-sensitive and at least one filter layer containing a substantive azo-dyestuff, developing said material in color, treating said material with an agent capable of reducing said azo-dyestuff, removing the decomposition products of said azo-dyestuff thus obtained by washing, and treating said material with an oxidizing agent. No. 400,250. General Aniline & Film Corporation. (Wilhelm Schneider).

Producing multicolor photographic pictures by dyestuff forming development by causing as a dyestuff former a compound selected from the class consisting of hydroxypyridines and hydroxy-2-pyridones to react with the oxidation product of an aromatic developer. No. 400,251. General Aniline & Film Corporation. (Hermann Lohaus).

Refining hydrocarbons by treating an impure hydrocarbon material containing gums and/or gum-forming materials with an anodically electrolyzed aqueous solution of an acid. No. 400,252. The Hultene Rubber Corporation. (Edgar W. Hultman).

Method of generating and utilizing hydraulic power for clamping articles being drawn. No. 400,253. The Hydraulic Development Corporation, Inc. (Walter Ernst).

Formed article comprising a mineral aggregate and a ceramic bonding material distributed throughout the aggregate, said article having a strong outer shell formed by a superficial layer of the material of the article firmly cemented together by an adhesive, said shell serving to protect the article against damage in handling and in use, said ceramic bonding material being adapted to form a ceramic bond throughout the article when the latter is subjected to sufficient heat. No. 400,254. The Illinois Clay Products Company. (Otis L. Jones).

Sausage casing ink comprising a major portion of pigment and a minor portion of fluid menstruum which comprises a waterproof varnish, unsaponifiable greasy matter, a litho oil and at least 1 per cent of an uncombined protein precipitant. No. 400,255. Industrial Patents Corporation. (Charles T. Walter).

Process for enlarging the holes of foraminous copper sheet without substantially reducing the thickness thereof by electrochemical means. No. 400,268. Edward O. Norris, Inc. (Edward O. Norris).

Producing a foraminous sheet by a process including electrolytic deposition of the foraminous sheet structure. No. 400,269. Edward O. Norris, Inc. (Edward O. Norris).

Process for reactivating spent decolorizing earth containing adsorbed tarry matter. No. 400,278. Shell Development Company. (Georg H. von Fuchs).

Process of separating acid reacting organic substances, having dissociation constants below about 10<sup>-5</sup> from an organic water-insoluble liquid in which they are dissolved and which is substantially inert toward strong bases. No. 400,279. Shell Development Company. (David L. Yabroff and Ellis R. White).

Process of separating weak organic acids contained in a water insoluble neutral or basic organic liquid. No. 400,280. Shell Development Company. (David L. Yabroff and Ellis R. White).

Continuous process of treating limestone having calcium and magnesium components. No. 400,282. The Standard Lime and Stone Company. (William J. Young).

Applying parasitocides to plants by gasifying a volatilizing parasiticide, mixing it with exhaust gases, bringing the mixture into contact with a dusting powder suspended in gas, and applying the resulting parasitocidal powder to plants. No. 400,295. Tobacco By-Products and Chemical Corporation. (Robert B. Arnold).

Preserving green fodder by storing in presence of a water soluble nitrite and a substance selected from the group consisting of non-toxic formates and acid amides. Winthrop Chemical Co., Inc. (Gustav Pfeiffer).

Preserving green fodder by adding thereto a nitrate the NO<sub>2</sub> group of which is linked to a physiologically innocuous radical. No. 400,310. Winthrop Chemical Co., Inc. (Friedrich W. Stauff and Georg Janning).

Manufacture of esters of methacrylic acid or free methacrylic acid by treating a mixture of chlorotone, and alcohol and, if the free acid is to be obtained, water, with an acid or caustic alkali or other base. No. 400,316. Henry Dreyfus. (Edward B. Thomas and Horace F. Oxley).

A cylindrical seamed laminated cellulose sausage casing provided with a double lapped joint. No. 400,322. Industrial Patents Corporation. (Charles T. Walter).

Additional Patents Granted and Published October 28, 1941 will be given next month.